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VOL. XVI. JANUARY, 1904. No. 1.

THE JOURNAL OF OPHTHALMOLOGY, OTOLOGY AND LARYNGOLOGY.

EXTRACTION OF CATARACT IN THE CAPSULE. *

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Extraction of the lens in the capsule was practised in the early days of cataract extraction on the continent of Europe, but seems to have fallen into disuse. The attitude of English ophthalmologists toward it appears from the fact that at the meeting of the British Medical Association, held at Cheltenham in 1901, a paper was read in the Section of Ophthalmology by Mr. F. Richardson Cross, of Bristol, in which he remarked incidentally: "The ideal extraction of a cataract is that of the whole lenticular body in its capsule. But this is safe only under exceptional circumstances." Mr. Cross's view seems to have been tacitly accepted by the meeting.

I quite agree with Mr. Cross as to the theoretical excellence of the operation, and in addition to that I hope to show in the present paper that it not only possesses great practical utility, but that the circumstances under which it is not advisable are few. In India extraction in the capsule was practised to some extent by Surgeon-Major Macnamara, I. M. S., in the early seventies, and in recent days it has been made a systematic operation by Lieutenant-Colonel T. R. Mulroney, I. M. S., and his assistant, the late Raj Barbadur Mehr Chand. I hope that the operation will be firmly established in India before the expiry of many years.

The details of the operation which I perform are my own. My personal experience extends to over 8,500 cataract extractions. Of these, about 2,000 were performed by the orthodox method of scratching the capsule and leaving it behind, and about 6,500 were extractions in the capsule. Those extracted by capsulotomy were, generally speaking, my earlier operations. In them, when a nervous patient was operated on under cocain, it occasionally

*From the *British Medical Journal,* Sept. 26, 1903.

happened that when the incision was made, before there was time to take out the speculum, the patient by screwing up the orbicularis muscle put pressure on the eyeball and shot out both the lens in its capsule and a quantity of vitreous. I was agreeably surprised to find that these cases generally turned out well in every way. The observation of this accident and its results induced me to perform extraction in the capsule as a systematic operation, modifying details as experience dictated.

Table of Results of Cases Submitted to Extraction in the Capsule at Jallundhar Civil Hospital from January 1 to May 1, 1903.

Preliminary Inspection of the Eye to be Operated on.—The trained eye of the surgeon, aided only by the finger-tips, will supply more information than all the instruments that have yet been devised for this purpose. The patient's eye can be properly inspected only when he is lying on his back in

Number	Iritis	Escape of Vitreous	Capsule Bursting	Capsule Leit Behind	First-class Results	Second-class Results	Third-class Results
1,023	Per Cent. 0.19*	Per Cent. 6.6	Per Cent. 8	Per Cent. 4	Per Cent. 99.42	Per Cent 0.19	Per Cent. 0.39

*Occurred in cases where the capsule was left behind.

a good light, from which the direct rays of the sun are excluded. The appearance of the sclerotic, the luster of the iris, the position of the iris, the position of the lens, and the reaction of the pupil to light will reveal to the naked eye all that is required as far as cataract is concerned, except in the very rarest of circumstances. The reaction of the pupil to light is almost as accurate an indicator of the visual acuteness of the retina as the galvanometer is of an electric current.

For practical purposes, and having regard only to the operator's point of view, I classify cataracts as follows:

I.—In children.

(*a*) Soft, that is, of milky consistency.

(*b*) Gelatinous, that is, of gelatinous consistency.

II.—In adults.

(*a*) Hard.

(*b*) Semi-soft, that is, a core surrounded by juice of milky consistency.

(*c*) Semi-gelatinous, that is, a core surrounded by material of grape-pulp consistency.

(*d*) Atrophic.

The operator, before he has made his incision, can diagnose each of these varieties with accuracy, hence the importance of the classification. Cataract in children and atrophic cataract are not suitable for extraction in the capsule. In the semi-gelatinous variety the lens occasionally has a peculiar bluish tinge. These cases, also, are unsuitable for extraction in the capsule,

for the capsule is weak and liable to become ruptured during the operation, allowing the core and lens matter to escape; and if the surgeon be not dexterous, it will retract, together with some lens matter, so that the ultimate effect on the eye is no better than if the operation had been performed by scratching the capsule.

Out of 1,083 cataracts operated on by me during the first four months of the current year I decided that 60, or 5.5 per cent., were unsuitable for extraction in the capsule. Thirty-one of these were in children and 29 were in adults; so that among the adults I excluded 2.7 per cent. from this operation.

Having decided that the case is suitable for extraction in the capsule, and the usual preliminaries having been gone through, I make a liberal-sized upper incision, inserting the knife at the sclero-corneal junction just as deep as anatomy and experience teach us will avoid wounding the dangerous area, and cut out in the cornea with a sweep half way between a normal pupil and the sclero-corneal junction. I then take out the speculum, and my assistant hooks up the upper eyelid on an ordinary large-sized strabismus hook, and draws down the lower lid by placing the ball of his thumb on the skin of the face close to the lower eyelid. He lifts the upper lid well up with the strabismus hook, and relaxes his hold on neither the upper nor lower lid until the operation is finished. It is important that he should lift the upper lid well up and retain the lower one so well down that the orbicularis muscle cannot be brought into action by the patient until the operation is finished. The importance of a thoroughly competent and reliable assistant in this matter cannot be over-estimated. Assuming that the operator is skilled in ophthalmic manipulation, it is the free action of the orbicularis muscle in almost all cases which causes escape of vitreous. I consider it of supreme importance to impress this fact upon any one attempting the operation. I then place the curve of a strabismus hook over the cornea about the junction of the lower with the middle third of the lens, and a spoon just above the upper lip of the wound. I press the strabismus hook down, neither towards the wound nor from it, and do not alter its position until the lens is nearly out, all the time making slow, steady, and uninterrupted pressure and counter-pressure. When the lens is more than half way out I, while keeping up the tension with the spoon in its original position, shift the strabismus hook forward, and gently tilt the lens by getting the edge of it in the concavity of the strabismus hook. If this latter manœuvre be done with the spoon or other comparatively sharp instrument, or with the slightest roughness or jerk, the capsule will give way and allow the body of the lens to escape, and if the operator be not dextrous will itself retract with some contained lens matter, and being in part dislocated will give trouble in its removal. I shall deal with the removal of such capsules later on. The lens in its capsule being out, the eyelids are let go and bandaged up with the usual antiseptic

pad. If a trace of vitreous has escaped it is snipped off with scissors and if the iris prolapses it is replaced, before the eyelids are let go.

In the case of non-iridectomy extractions the slow, steady strain of the lens on the pupil tires out the muscle of the iris and the pupil gently relaxes as the muscle tires. There is no advantage in a preliminary instillation of atropin. I have frequently thus extracted the lens in its capsule in opium-eaters, in which the pupil was contracted with opium, without atropin and without difficulty. This slow, steady proceeding also allows time for the lens to become gently dislocated. The operator who attempts to extract the lens in its capsule either with or without an iridectomy, as rapidly as is done when the capsule is scratched, will have disastrous results. By over-rapid expression the capsule will burst. I find that the whole operation takes from two to three minutes—twenty to thirty cataracts in the hour. The only sponging, washing, or douching I use is a preliminary washing out of the conjunctiva with a 1 in 2,000 perchloride of mercury solution. After the lens in its capsule comes out, if we go "fiddling" we are sure to have an escape of vitreous. The lids on closing are quite sufficient to drive out any fluid there may be, vitreous or other, except blood. Blood should not escape in a cataract operation beyond the merest trace, which can be neglected. The operation I perform with an iridectom differs in no way from the above, except in the iridectomy. The corneal wound I make is very little larger than is necessary for the safe extraction of cataract by the ordinary method.

Rupture of the Capsule.—I have before called your attention to the capsule giving way when the lens is partly out. Of the 1,023 cases submitted by me to extraction in the capsule in the current year the capsule gave way in 8 per cent. In half of these I was able to catch the capsule hanging out of the wound with its contained lens matter, thus leaving the capsule behind in 4 per cent. of the cases. This is the most serious complication in this form of operation. The operator at this juncture should keep up sufficient pressure with the strabismus hook in his right hand to prevent the capsule retracting, and lifting an ordinary dissecting forceps with his left, he should catch the capsule and bring it with its contained matter with him. If the capsule have retracted, he should try by gentle stroking to press out its contained lens matter—this the experienced operator will generally succeed in doing—and if the capsule be evident to the eye we may make an attempt to catch it with an iris forceps and fetch it out. If we cannot do this latter by one or two careful attempts we should desist and watch events.

Escape of Vitreous, so much dreaded, though not a desirable thing, I have seldom seen evil consequences from. In the 1,023 cases under consideration, escape of vitreous amounted to 6.6 per cent., and in only one of them did I see evil consequences attributable thereto. Cases in which the amount of escape has been small seem to do just as well as others. The vitreous seems to repair as well as any other tissue, and why should it not?

The place of escaped vitreous is either taken by aqueous humor or is renewed, and the tension of the eye does not seem to suffer unless the escape be considerable. The cases noted in the table in this paper are, with three exceptions, only a bead of vitreous escape. The three exceptions were in supremely nervous patients, who shot out the lens and a quantity of vitreous the moment the incision was completed. Two of them turned out well, and one was completely lost. It may be noted that the accident in these three cases would have occurred in any operation. The statistics also include the extraction of some 35 cases of lenses couched by the *rawal* (the native ophthalmic quack operator of India), and in these we are a little more likely to have escape than in ordinary plain-sailing cases. When the lens is half way out, or much earlier in the case of couched lenses, a clear point of vitreous will occasionally appear in the wound behind the lens. It is due to the fact that the capsule is unusually strongly anchored in part and refuses to give way. The moment this clear point appears behind the lens when it is being expressed, the spoon in the left hand which has been making counter-pressure should be lifted, the strabismus hook in the right hand keeping the lens in position. The spoon should be pushed beneath the lens through the clear point and the lens suspended on it. Once the lens is supported on the spoon the strabismus hook can be used as before to drive out the lens, the spoon merely coming with the lens but not drawing it out. It will be observed that I use the spoon for the purpose of supporting the lens, and preventing it from putting pressure on the vitreous. If we attempt to lift out the lens on the spoon merely, the capsule will give way with exceeding frequency. The manœuvre I recommend is in practice an easy proceeding and prevents undue escape of vitreous.

Visual Results.—Owing to pressure of work, neither I nor my reliable assistant have time to test systematically the vision of every case when leaving hospital, as the Jallundhar Civil Hospital is not merely an ophthalmic but also a large general surgical hospital, in which there are but two native qualified assistants. On slack days we have time to go into details as regards visual results. The visual acuteness of cases extracted in the capsule is far ahead of what I used to have when I scratched the capsule and left it behind. With about an 8 D. lens—testing for long range—I find that about 30 per cent. of the patients can count the military test dots at a distance of from 40 to 57 feet (the normal maximum being 57 feet), about 60 per cent. between 20 and 40 feet, and the remainder being 10 and 20 feet. The cases of 10 and 20 feet were generally regarded at the time of operation as cases of low visual acuteness due to chronic retinal changes. To count the military test dots at a distance of 15 feet is all that is required of recruits for line regiments of the British regular army.

Iritis.—982 cataracts of the 1,023 cases under consideration were extracted in their entirety in the capsule. In the remaining 41 the capsule

had to be left behind. In these 982 cases I had not a single case of iritis. In the 60 cases in which the capsule was scratched and deliberately left behind, and in the 41 in which I was obliged to leave it behind, iritis occurred proportionately distributed to the extent of about 5 per cent. In these 982 I had four absolute failures. The details are as follows: (*a*) Suppuration, 1. (*b*) Hæmorrhage from the fundus, 1. (*c*) A nervous patient shot out the lens in capsule and a large quantity of vitreous just on completion of the incision; eye wasted. In the remaining 101 cases I had two failures: (*a*) hæmorrhage, 1; (*b*) suppuration, 1.

The cases extracted by me this year were all done with an iridectomy, hence the absence of prolapse of iris. In previous years I did this operation systematically without an iridectomy unless in exceptional cases. It will be observed that iritis does not follow when the lens is extracted in its capsule, and here I do not draw a distinction between irritation of the iris and iritis; I call them both iritis. My former experience of extracting the lens in its capsule without an iridectomy led me to the same conclusion. It is generally held that iritis following cataract extraction is largely due to bruising of the iris by the lens when it is escaping, and this is also advanced as the reason why iritis follows more frequently in cases in which an iridectomy has not been done than in cases in which an iridectomy has been done, the bruising of the iris being necessarily greater. This is, in my opinion, entirely beside the mark. If extraction of the whole lenticular body in its capsule is not followed by iritis, then it follows that bruising of the iris has no connection with this iritis. The iritis following cataract extraction is in my opinion due to the fact that lens matter and capsule have been left behind. Why it follows oftener when no iridectomy is done than when an iridectomy is done is due to the fact that it is more difficult to get the last traces of lens matter out of an eye in which an iridectomy has not been done than out of one in which it has been done, and as a consequence it is more often left behind.

Macnamara says: "The greater my experience in these matters the more convinced I am that most of our failures in extraction are due to the fact of soft lenticular matter and capsule being left in the eye after the removal of the lens"; and Richardson Cross says in the article before referred to: "After extraction of a lenticular cataract there will always remain some fragments of altered lens or capsule as a record of the operation."

With both of these remarks I entirely agree. By extraction in the capsule we practically eliminate iritis and the possibility of after-cataract, both of which are serious complications. Dealing with an after-cataract is at least as serious as the extraction of the lens in its capsule *de novo*. It will also be admitted that the vision is necessarily more acute than when the capsule is left behind and than when iritis has occurred. No instrument or douche need to be inserted to remove lens matter, and thus manipu-

lation in the interior of the eye is reduced to a minimum. There is no friction applied to the cornea, and hence the minimum of injury is done to its epithelium. As to its drawbacks, I know of none which is not capable of being overcome by experience. I may add that extraction in the capsule is not an operation for the inexperienced. In the hands of a skilful operator extraction in the capsule is at least as much in advance of the ordinary operation as litholapaxy is of lithotomy in the case of stone in the bladder.

Experience enables one to judge when the lens is coming away without danger to the vitreous.

CATAPHORESIS IN MIDDLE EAR SUPPURATIONS

E. D. Brooks, B. S., M. D.

Ann Arbor, Mich.

The principle of cataphoresis is well known to the medical profession, and much has been written upon the possibility of applying medicine directly to the diseased part by moistening the cathode with the selected remedy and applying it to the seat of the disease, placing the anode upon an indifferent part, as in the hand, thus causing absorption of the remedy where most needed. How much of the benefit derived from this process was due to the cataphoresis and how much to positive galvanism is an open question, and must, of necessity, long continue so to be. Here is room for enthusiastic investigation combined with discrimination.

It seems to have remained for a homœopathist to make application of this principle to suppurative conditions of the middle ear. The attention of the writer was first called to it in August, 1903, while on the staff of the New York Ophthalmic Hospital, during a discussion by the attending surgeons. In that discussion Dr. McBride related his successes in the treatment of that intractable disease, especially in the chronic form, by the use of cataphoresis. Dr. W. E. Foster, now of Gloversville, N. Y., and I began the treatment of a stubborn case, but I was called home before sufficient time had elapsed to allow me to judge of its efficacy. Since returning to my work I have used it in two cases, the relating of which will give also the *modus operandi.*

Case 1.—Mrs. R., aet. 24 years, large, strong, brunette, apparently in perfect health but for this one thing. When a child had otorrhœa with development of polypi, which was finally, after months of discharge, apparently cured by a prominent allopathic specialist. No further trouble with

the ear was experienced until a few weeks prior to her coming to my office, when an attack of nasal catarrh again started the discharge, which was abundant, watery, excoriating and foul-smelling, accompanied by headache, tenderness of the ear and severe nervous weakness; so much so that she fainted from the most gentle manipulation of the meatus.

After syringing the ear and a liberal use of hydrogen peroxide, the meatus was filled with a warm solution of bichloride of mercury, 1/1000, the patient reclining with the discharging ear uppermost, the copper tip of a conducting cord, wound with absorbent cotton to prevent the metal coming in contact with the meatus, was introduced and connected with the binding-post of a galvanic battery, the anode being held in the patient's hand, and the current slowly turned on to the greatest strength the patient could endure without discomfort. The current was left on for five minutes and then slowly removed.

In spite of my greatest care severe vertigo accompanied the lessening of the current, as well as its increase. This treatment was repeated daily for four days, with rapid diminution of the discharge and other symptoms, when, suddenly, she ceased her visits and I saw nothing more of her for about two weeks, when she came smiling into the office and wanted to pay her bill. Her answer to my interrogation as to her sudden disappearance was the triumphant assurance that she was well and did not need to come again. It may be superfluous to add that I rejoiced with her and pocketed my well-earned fee without a pang of conscience, as examination of the ear showed a return to health. That was six weeks ago, and she remains apparently well. Tellurium 6x was administered with the other treatment, and may possibly claim part or all the credit, as I have seen cases recover under its application without any local treatment.

Aye, there's the rub. If one *will* give the homœopathic remedy along with his adjuvant treatment, how is he to tell which is to be credited with the cure when that is the result? I confess I am too much afraid of the dire consequences attributed by many of our men to suppressed discharges, not to give what I call the similar remedy when using adjuvants.

Case 2.—Mr. B., bridge carpenter, aet. 62 years. Hale and hearty until he caught cold—(what is the use of putting that expression in quotation marks when everybody knows just what it means?) Had an acute otitis media, with rupture of the membrane and profuse discharge, which, for a time, relieved the pain. In a few weeks another accession of cold caused pain and swelling over the mastoid, and he came from central Ohio for treatment. I found the usual symptoms of a moderately severe case of mastoiditis, with purple swelling over mastoid, tenderness, pain precluding sleep, slight elevation of temperature, with discharge of bland, odorless pus from an opening in the tympanic membrane.

After syringing with warm water, and using hydrogen peroxide as long as effervescence continued, the positive electrode was applied to the meatus filled with 1 to 1,000 bichloride solution for five minutes, followed by a five-minute application of the positive galvanism over the mastoid. This treatment was repeated daily, together with the administration of capsicum 3x every two hours, and hot fomentations to the mastoid three or four times a day for 15 minutes at a sitting. Improvement was prompt and uninterrupted, the pain, swelling and amount of discharge rapidly diminishing, and the second night after instituting the treatment he slept all night, for the first time since the onset of the mastoiditis. The fourth day I found fluctuation between the auricle and the mastoid, and evacuated about a dram of creamy, odorless pus, washed out the abscess with boric solution—and that was the last of the abscess, as it did not discharge any more nor refill. The opening in the membrane soon closed and the parts returned to a healthy appearance.

Patient was then discharged and returned to his work, apparently fully recovered, and feeling very jubilant, having been under treatment seven days. He remains well, ten days later. No other remedy was given except a few doses of silica after opening the abscess.

This paper is written with the hope that some of our men who have access to large clinics will determine the true value of this agent, so that it may be assigned to its true place in our armamentarium, if found worthy.

SYMPOSIUM.

In pursuance of its policy of facilitating in every way the interchange of ideas among members of the medical profession, the Journal proposes the subject stated below and requests that those of its readers who have had experience in the line suggested should state their conclusions for the benefit of the Journal. All communications should be written on one side of the paper only and should be addressed to the editor:

Dr. JOHN L. MOFFAT,
1136 Dean Street, Brooklyn, N. Y.

1. Have you found that astigmia is apt to change? Does your observation agree with that of Bennett and Clemesha:—"Astigmia is not a fixed thing; after the presbyopic age the tendency is to pass to the horizontal position of the axis of the highest refraction, and the proportion of cases whose axes are oblique also increases, but not to the same extent"?

2. Have you any observations that may help to decide whether the axis shifts or the eye passes from one astigmia to the other through emmetropia?

Other subjects will be proposed by the editor from time to time, and it is hoped that the readers of the Journal will send in responses promptly on such as are of interest to them.

AN ANATOMO-PATHOLOGICAL AND CLINICAL STUDY OF CHOLESTEATOMA OF THE MIDDLE EAR

Dr. Lucien Barajas,

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(Translated from *Revue Hebdomadaire de Laryngologie, D'Otologie, et de Rhinologie,* by Walter Sands Mills, M. D.,

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Cholesteatoma in general, and that of the ear in particular, is a very complex question from the anatomo-pathological point of view. It was first observed by Cruveilhier, who found, while making an autopsy on the brain of a boy ten years old, a growth which, from its appearance, he called a "pearly tumor." Subsequently it was described as a true cholesteatomatous neoplasm by Müller, in 1838. In 1863 Hinton, by applying this name to false growths in the ear, diverted the true sense of the word, making it lose the signification for which it had been intended.

Since then there has not been a prominent otologist, nor a pathologist of note, who has not given his opinion on this question so difficult to decide. In consequence of the discord produced by these opinions, and the difficulty of classifying the clinical cases of the one and the microscopic preparations of the other, one has come to describe as cholesteatomata many very distinct auricular neoplasms. These are so different that it is difficult, if not impossible, to find a formula which, in considering the clinical observations and the anatomo-pathological facts, expresses what one must understand by the term "cholesteatoma," and includes all those which, henceforth, we will place in a separate group to include everything that we shall call "cholesteatomoses."

The rarity of the cases which present themselves adds to the uncertainty in which this question is found. As a result, one sometimes mistakes for cholesteatomata, masses of cholesteric appearance which in reality are keratinic, or purulent. Or, on the contrary, one passes unrecognized true cholesteatomata, not giving to the discovery the importance it merits. Those who fall into this mistake without knowing it should by no means be despised, for it is the part of man (even the masters) to err; and pathologists of the competence of Cornil and Ranvier have not in their scientific lives seen more than three cases of cholesteatomata.

Moreover, there has not existed a clear and definite conception of cholesteatoma since we admitted, with Virchow, that the presence of cholesterine was not a necessary part of it; or since Hinton and Sabrazés stated that the crystals of cholesterine sometimes founded in the intercellular substance, constituted, instead of cholesteatoma, what histologically considered were like masses of cholesterine found in degenerating and suppurating processes. It therefore becomes difficult to agree as to what we should understand by such a new formation, i. e., cholesteatoma.

This diversity of opinions has made the definitions of cholesteatoma as varied as the conceptions suggested to the authors by the origin or the aspect of the process.

Politzer considered cholesteatomata of the temporal bone as being formed by epithelial masses, which, penetrating the bone, caused death by meningitis or phlebitis. He divided them into two classes. The first, made up of those tumors rounded and glazed, covered with thin membranes, and composed of concentric lamellae of epithelial cells, crystals of cholesterine, and detritus. The second, made up of accumulations of epidermal cells, without well defined boundaries, in concentric layers, as often found after suppurations of the middle ear, giving them the name of cholesteatomatous masses.

Bezold, agreeably to these theories, with regard to the origin of cholesteatoma, defines it as a curative process analagous to cicatrization, and he calls it a desquamative process. Schmiegelow defines cholesteatoma as a metaplastic modification determined by the pressure of liquids secreted in the mucous membranes. Virchow considers it a proliferation of the epidermal epithelium, characterized by flat cells of many-sided lamellae, and annexing crystals of cholesterine. Lichtwitz and Sabrazes define cholesteatoma as a rounded tumor of pearly appearance, made up by an accumulation of plane horny cells, arranged concentrically in the manner of the tunic of an onion; with, between the cells, more or less degenerated pigment, many microbes, the bacillus of Koch, and cholesterine.

A definition which includes clearly the macroscopic and microscopic appearances is that of Haug. He considers as cholesteatoma an increasing growth varying in size from a cherry-pit to a hen's egg, and even to that of a medium sized apple; generally rounded, rarely elongated; yellowish white or bluish white and of a pearly lustre. It is not formed of detritus, but by a great number of concentrically arranged lamellae, in the manner of the coverings of an onion, these lamellae in turn being made up of large and flat epithelial cells; the kernel of the tumor presents at the most traces of coloring matter, and contains in its mass a large amount of cholesterine.

Hinton and Wend have changed its original meaning in applying the term cholesteatoma to false cholesteatomatous masses. Toynbee described it under the name of mollusc-like tumor, and later under that of sebaceous

tumor. Foster considered cholesteatoma as a near relative to epithelial cancer. Volkman placed cholesteatoma between cancer and atheroma.

Cornil and Ranvier also considered it as pearly epithelium. Dr. L. Dor separates true cholesteatoma from those masses of cholesteric degeneration which may be found in other tumors and inflammations. He regards cholesteatoma as an endothelial tumor with the characteristics of a neoplasm and not of degeneration. Cajal makes it a sort of endothelial pearly tumor, characterized particularly by the rounded form, the fibrous capsule, the small amount of stroma contained, and the number of globes or pearls of endothelial cells enclosed.

Klebs, in studying the endothelium, recognizes three kinds, coming back to the first idea, the cholesteatomata of Muller. Ziegler considers cholesteatoma as a pure epithelial tumor, and classes as endothelial only certain sarcomatous growths where the cells are derived from the endothelium of the lymphatics. Lermoyez recognizes two forms: *First,* a primitive epithelial tumor, atypical, which is accompanied by congenital suppuration of the ear; this type is rare and is confused with the *Second,* or secondary cholesteatoma. This latter is the ordinary form, and results in consequence of chronic suppuration of the ear; this forms a vicious circle, for it also causes the suppuration which produces it. Finally he considers it of benign nature although of malign evolution.

Sucx presents them under the aspect of rounded masses, of a white tint, slightly yellow, with a pearly reflexion characteristic of the interference of rays of light between the cell walls. Usually the centre is found filled by a caseous nodule.

We see, by the above, that what has been written and held concerning cholesteatomata and their pathological products, is so diverse that it is difficult to get a clear and concrete conception of these tumors. If we study the literature we see that the name cholesteatoma has been given to three principal and distinct types of formation.

The first is composed of purulent caseous masses, which appear in chronic suppurations of the bony case, and confounded with cholesteatoma only in the observations of those who neglect to make anatomo-pathological examinations. The second is formed by overlapping layers of epidermis, of rounded form, sometimes having a certain pearly appearance; and at other times simply superposed and mixed like a greasy and cholesteric degeneration, in which microbes have occasionally been found. These lamellae, which seem to originate in the epidermis, appear with or without cholesterine. In formation they are like the superficial layers in elephantiasis of the leg. The greater number are not nucleated, and they have a tendency to spread and to become hollow.

The third type is made up of those which really should be called cholesteatoma. This applies to the endothelial tumors which assume two forms, the solid and the pearly, which are composed of endothelial cells contained

in a fibrillary connective stroma, and which have undergone cholesteric degeneration. This tumor fits the description of cholesteatomata of the dura mater, and is the true one. In origin, in development, in its place among the neoplasms, it is the only one which truly deserves the name.

This last type is very rare in the ear. Most of the anatomo-pathological reports and cases reported in the bibliography are better placed in our second division. The name cholesteatoma should be applied exclusively to endothelial cholesteric tumors, not to those formations in the ear which are merely cholesteric in appearance.

If the definition of cholesteatoma, based on its macro- or microscopic appearance, has given rise to any doubt or controversy, its origin and anatomo-pathology have given rise to much more. Virchow noted the likeness of the hard pearly tumor to new formations in the brain, meninges, and other parts of the body. He soon arrived at and declared the opinion that there was a true heteroplastic epithelial neoplasm found here and there where nature had placed neither an epidermic element nor an epithelial cell.

The opinion of Virchow has been modified by others, who consider a cholesteatoma a congenital neoplasm. Bottchez tried to explain it as a primary proliferation of the epithelium in the aqueduct of the vestibule, while Kuster and Mikulicz regarded it as coming from the covering of the obstructed branchials. In consequence, the epithelial elements, during the closure of the split branchials, remain higher enclosed in the cavity of the tympanum. In a case where a simple or repeated inflammation has developed in this cavity the epithelial mass disaggregates and perhaps produces a cholesteatoma. This opinion, purely hypothetical, has been impeached by the work of Tröltch. He has deduced by his investigations that it is a question of a simple accumulation of pus and of masses of mucus, which, by direct pressure on the neighboring parts, has occasioned a transformation of the epithelium. In consequence of this pressure the cellular elements multiply in large quantity and produce karyokinesis, and multiplication and flattening give an extraordinary resemblance to stratified epithelium.

This theory has been accepted, with more or less modification, by all otologists of the present day. Politzer says that at the very least a part of the cholesteatoma depends on the loss of the veneer of the cylindrical cells. This opinion rests, consequently, on a metaplastic theory. Wener, relying on the resemblance of external desquamative otitis to cholesteatoma, has thought it an inflammation with desquamation of the mucous lining of the cavity, which, after cure, has transformed the cylindrical epithelium to epidermal epithelium. The final development of this epithelium has produced the cholesteatoma. Lüer also affirms that in virtue of the formation of granulation, there exists a lesion of the epidermal elements, and that in consequence, cholesteatoma is the result of a constant renewal of the epithelium on the border of the membrane where the granulations are found.

A very reasonable explanation of the origin of cholesteatoma has been given by Habermann in harmonizing the clinical and anatomo-pathological findings. According to him, after a chronic inflammation there is produced on the border a hyperplasia of the epithelium of the external ear; and this stratified epithelium develops towards the interior, traveling through an opening of the tympanic membrane into the cavity of the middle ear.

With the duration of the inflammation is also prolonged the hyperplasia of the epidermis, which grows within. Moreover, the constant destruction of the superficial coverings of the keratinic epithelium, which are superposed like the coverings of an onion in the cavity of the middle ear, contributes to the formation of the brilliant masses of the cholesteatoma. This primary multiplication, perhaps, originates in the stratified epithelium of the external auditory canal, as well as in that of the tympanic membrane, especially the border; constantly covered with the epidermis of the opening of the membrana, where it forms ordinarily a hard callous, according to the investigations of Haug. Bezold exploited a similar idea, but a long time after Habermann. Haug thought that one rarely encountered primary cholesteatoma of the petrous portion of the temporal bone having for its origin the epidermic elements of the closure of the cleft branchials.

According to this author, the greater part of a cholesteatoma may be considered, with a semblance of truth, as a secondary formation produced by the development towards the interior of the flat epithelia of the external auditory canal which penetrates into the middle ear deprived of its epithelial envelope, through an opening in the tympanum. Unless one might declare that this substitution is a matter of metaplasia of epithelium. Certainly cholesteatoma is not the result of this penetration alone; it must require a number of causes to produce it. Wend expressed the opinion that it was a question of the proliferation of the endothelium which covers the inner side of the tympanum.

If we pass in review the pathogenic theories we find a great confusion as to their valuations. Leaving aside the theory of the metaplasia of the epithelium, we find three which dispute for the supremacy. That which considers the matter in question a development, for some reason, perhaps inflammatory, from ectodermic germs enclosed in the cavity during the closure of the cleft anterior branchials, that of Habermann, of the emigration of the epithelium of the external ear into the cavity through an opening in the tympanic membrane, and that which declares that cholesteatoma is developed by proliferation of the endothelium on the outside of the membrane.

One cannot affirm which of these theories is true. Careful autopsies must be made, with anatomo-pathological examinations of cholesteatomata at their origin, to decide as to the method of their development, and this is very difficult. The last of the theories shown above should be the true one. Above all things it seemed to be demonstrated in all the cases which I have observed,

that the patients had a history of an old inflammation of the cavity. One can understand that, in consequence of the lack of a clean-cut conception of a definition for the genesis of cholesteatoma, it is not astonishing for one to cite clinical observations of these processes which cannot be placed in the list of any particular neoplasm. Maybe this is due to error in the histological interpretation, or, perhaps, because the authors are satisfied with anything in the way of macroscopic examination.

Some have cited cases operated without the advantage of analysis, as those described by Suhn Beinchar, Guyè, Campere, de Mases, Korner, Braquehaye, Lucae, etc., and others; mainly Chavasse and Leutert. The first, in the *Archives Internationale* of 1901, described two typical cases of cholesteatoma of the cavity of the middle ear. He considered these tumors as identical with the pearly tumors of the iris, the meninges, the face and the ball of the hand and fingers. He based his statements on these ideas in order not to confuse them with the accumulations of the desquamative epithelial products sometimes observed in the auditory canal and described under the name of desquamative otitis, or of obstructing keratoses, and which may lead to error. He finished by a histological description of the tumors observed by him which resembled in nothing a cholesteatoma, and he fell into the error which he warned others against in the beginning. Therefore his histological description is expressed in the following terms: "The mass examined at the laboratory at Val-de-Grul is made up of layers of imbricated epidermis forming a bed of the thickness of half a centimetre. In the center is found a yellowish mass which gives off an infective odor, and in which is found the streptococcus and the coli-bacillus in large numbers. There were no crystals of cholesterine. The covering is formed by laminated tissues having fine fibrillae which anastomose with each other, and in which is found a cellular element. At certain parts of this tissue where the layers seem to form an external covering, the little plates can be seen presenting a structure like the Malpighian bodies."

This report, copied verbatim, shows plainly the error of the author, who considers as cholesteatoma merely a higher process with some zones of degeneration and keratinises. We have not met the typical cholesteatoma or even the cholesteric endothelium, which is undoubtedly very rare. The formations found by us belonged to those poly-stratifications of layers, originating, perhaps, in epidermal degeneration, without a neucleus and mixed with detritus and fatty substances, and, in some cases, with crystals of cholesterine.

Among the thirty-six patients operated upon by me in 1902, where it was necessary to open an ample way into the middle ear, five particularly fixed my attention. I considered them affected with cholesteatoma and held my diagnosis before and during the operation, basing it on the clinical conception, which, until the present moment, the mistaken interpretations of various authors had made me entertain. A histological analysis made with

care has modified the diagnosis first formulated, leading to the truth as proven by experience.

Case I.—Manuel Morngan, aged 18 years, employe. Sent to my office January 5, 1902, by his physician, Dr. Herrera, after violent vertigos which had obliged him to quit his habitual occupation. This accident occurred in the course of an old suppurating otitis of the right ear, which his physician was treating properly. Examination of the ear showed a pale yellowish mass which occupied the posterior-superior zone of the tympanum. Behind the hammer and in the anterior-inferior part of the tympanum was a perforation, about two millimetres in length, under the border of the hammer. There was a stinking odor. The hearing was much diminished, the sound of a watch not being heard except by actual contact. The treatment at once established was irrigation with formol, using a Hartmann tube. All the symptoms diminished except the fetid odor, a circumstance which led me to believe there was still some putrid substance not eliminated. I abandoned this idea in consequence of the reappearance, a short time after, of all the vertigo and other symptoms of the beginning, accompanied by fever. This accident made it necessary for me to make a complete operation, which was done February 8, 1902, in the following manner:

After chloroform anæsthesia, and with the necessary aseptic preparations, the ossicles were removed and the attic opened. We found the attic full of pale, pearly, glistening masses, which extended everywhere, having invaded the entrance to the aqueduct. All these products were removed without the need of a more extended operation. After the extraction of the masses, some as large as a pea, convinced that not a vestige was left, I sutured the wound and carefully dressed it through the external auditory canal. A complete cure ensued in two months.

Histological Examination.—The portions examined presented in the first place a scaly appearance. They were made up of imbricated layers, white and shining in certain spots. Under the microscope they had the appearance of an amorphous hyaline body. No cholesterine was noticed. The specimen cut with great difficulty, even after being carefully enclosed in celoidine. Examination of sections and of little pieces separated by exfoliation from the principal mass showed them to be composed of little layers, superimposed, slightly colored, without a perceptible nucleus, and polygonal in outline, giving a section the appearance of an irregular mosaic. There was also seen a detritus of greasy granules of various kinds. Attempts to stain with various reactions gave no selective color, but the same pale tint, uniform and interrupted only by the polygonal contour of the lamellae. No other tissue was found in the part examined.

Case II.—Louis Rodriguez, aged 38 years, a diver at the port of Corona, of a strong and vigorous constitution. He reported that for about three years, when practising his trade as a diver, he experienced great pain in the

left ear with tumefaction of the corresponding posterior auricular region, high fever, and general prostration. These symptoms abated after a large quantity of pus began to flow from the auditory canal and from a fistulous opening situated about two centimetres from the posterior auricular furrow. New pains appeared five or six months later, a circumstance which obliged him to consult several physicians in Santiago. One of them operated, but so superficially that he was not relieved. He presented himself at my public operating clinic at Carmel in March, 1902, showing the following symptoms: The ear had an abundant discharge; the tympanum was ruptured, and the cavity full of pale fungosities; deafness was complete. About two centimetres behind the wing of the ear and on a line with the superior border of the auditory canal, was found an opening three millimetres in diameter and depth.

In view of these symptoms and of the persistence of pain I operated on March 20. A large opening was made into the cavity of the ear, giving issue to large pasty masses of a foul odor, pale, of semi-solid consistency, and having the appearance of cholesteatomata. Without other operative complication I opened the antrum in enlarging the existing opening. I made an opening through the superior-posterior wall of the canal, cleaned the fungosities from the middle ear with a sharp curette. Finally the entire cavity was touched with a ten per cent. solution of chloride of zinc. During the operation I used adrenaline, one per cent., having found that satisfactory when the field of operation needs to be kept free of blood. In four months this patient was dismissed completely cured.

Histological Examination.—The microscope showed the material in this case to be unusually close-knit fibres, abundant embryonal concentric cells, and some leucocytes. In short, inflammatory tissue. In certain regions were found various debris and degenerated detritus; in some, the pieces were accompanied with others which made up the whitened masses, but not purulent caseous debris. No cholesterine was found.

Case III.—Marie Celis, aged 40 years, with an old deafness and ringing in the ears, but without suppuration so far as she could remember, came to my public operating clinic at Carmel. She complained of some new symptoms in the left ear, consisting of pain in the entire auricular region, tumefaction over the same area, vertigo, high fever, and vomiting. She knew of no cause for these symptoms. The patient had a slight facial paralysis of the left side. At the bottom of the ear was a white mass, pearly and shining, which attracted attention immediately to the existence of a large cholesteatoma. Having removed some of these masses with a curette, we proceeded to examine them. The diagnosis was not confirmed, but the necessity of surgical intervention was imperative. I so informed her physician, Dr. Morcillo, who said anesthesia was contraindicated because of the patient's heart condition.

Nevertheless, I did the necessary operation under chloroform. This was similar to that in the preceding case, but without opening the posterior side of the canal. Perfect drainage was established after extracting the pale, shining masses which filled the auditory cavity. All the alarming symptoms which threatened the life of the patient subsided as if by enchantment, and the patient was well on the road to recovery in March, 1903, two months after the operation was performed.

Histological Examination.—The portion sent for analysis was made up of closely woven tissue, in part embryonal, in the woof of which could be seen hemorrhagic openings of some size which separated the fibres. The small portions, which to the naked eye looked like pale masses, were made up of disintegrating cells, and purulent agglomerations, which gave the cholesteric appearance, and, macroscopically, a tumor. No epithelial plates or cholesterine were found.

Case IV.—Don Antonio Cebrero, aged 46 years, soldier, residing at Alcala de Henares. He appeared at my public clinic, complaining of a deafness of the right ear, and vaguely remembering a former suppuration of this ear accompanied by a very fetid odor. A confrére ordered lavage with oxygen water, which caused the suppuration to cease, but the deafness to increase, so that hearing was limited to the tuning-fork. On examination of the ear I found the tympanum red in color, depressed in its lower portion like the handle of a hammer; and in the superior posterior portion, above the opening, a swelling which occurred in a flaccid membrane and presenting two or three mammillated and protruding points, of a pearly white color, which contrasted strongly with the red of the rest of the membrane. Insufflation of air in the cavity improved the hearing, but the improvement disappeared shortly after. I removed a portion of the white substance for analysis, but it reproduced itself in the same place with remarkable rapidity. The patient is still under treatment.

Histological Examination.—The part taken for examination was made up of two sorts of tissue. One, the more abundant, formed by leucocytes and by a few connective elements, and by embryonal cells between the connective fibers. The other, which covers the first in some places, and which is composed of scaly epidermis, superimposed hyaline cells without a nucleus and colored with difficulty.

Case V.—When I believed myself without subjects and the period of the Congress close at hand, there was brought to me on the 16th of March last a little patient by Dr. Alfred Blanco. This patient had been treated by me two years previously, but the treatment had been discontinued because the patient resided outside of Madrid. The mother said that her son, Joachini Fernandez de la Cancela, now residing at No. 7 rue d'Arriaza, Madrid, aged eight years, father dead of tuberculosis, had commenced to suffer from a suppuration of the ear, following measles, five years ago. A little later he

had convulsions, repeated at intermittent intervals, obliging them to watch the bed for three or four days after an attack.

The mother followed my prescriptions for a certain time, outside Madrid, but two or three different exacerbations had caused an inflammatory eruption on the side in the region of the mastoid. Following the last, a year ago, there had persisted a fistulous opening with fungosities, and a flow of pus. The pinna was separated from the mastoid. From the external auditory canal flowed an abundant discharge. One could see the fungous masses which filled and obstructed the cavity.

The facts given were sufficient to call for prompt intervention, which was made on March 28, with the valuable assistance of Drs. Fabregas, Prado and Dominguez, and in the presence of our confrères, Drs. Moreno, Grau, Diez, Gongora, Gereda and Blanco. A retro-auricular incision was at once made, including the fistulous opening, which was two centimetres behind the retro-auricular furrow at its lower third. The auditory canal was denuded, and, following the procedure proposed by Zaufal (of Prague), I trephined the antrum by the fistulous opening, where the external cranium was as thin as a sheet of paper. The opening was enlarged to about twelve millimetres in width and fourteen or fifteen in height. In this I was surprised to encounter a bluish-white mass occupying all the antral cavity, of a pasty consistency, oily appearance, with superposed pearly layers and of the volume of a cherry. The cavity formed was very considerable, for the antrum measured about three centimetres in depth by five and a half or six in height, having gained from the side of the roof and from the posterior more than from the cellular side at this point. All of this ample cavity was carpeted with a shining, pearly, bluish-white membrane, which was detached with a little curette.

The matter encountered and the affection of the bone made necessary further operating, which was happily accomplished and rapidly terminated, because all sides of the bone were found to be excessively thinned; making, in consequence, an auditory cavity so large that it seemed to be a continuation of the antrum, a part of the posterior side of the canal having been destroyed.

In the new part explored was found a mass equal to that encountered in the antrum, which, hidden by the fungosities found in the external part, was made up of the cells we had seen on first view. We found no trace of the ossicles. Combining curettage with irrigation the three cavities were thoroughly opened and cleared of a pearly, bluish-white membrane, strongly adherent to the sides, which they entirely concealed. Having explored the cavity and thoroughly cleaned it, it was cauterized with a ten per cent. solution of chloride of zinc. The wound was left with a permanent retro-auricular opening, after the method of Kritschmann, of Magdeburg.

Since the operation the patient has progressed well, without perturbation

of any sort. The process has not recurred. I expect to suture, two months after the operation, to finish the canal for a complete cure.

Histological Examination.—The pieces examined presented different appearances to the naked eye. While some had a yellowish-red color, were solid and compact, others were white, shining, scaly, and ragged. The first were made up, like the previous case, of inflammatory tissue without any appearance of cholesterine; the second were polymorphous, their structure was variable. In certain parts they were made up of polygonal layers and without a nucleus, not concentrically arranged in the form of spheres, but in a stratified formation. In some no nucleus or structure of any kind was found, they were hyaline in appearance and easily broken. In other parts there was found an agglomeration of greasy, granular tissue and caseo-purulent masses. Examination revealed the presence of a few crystals of cholesterine.

It is impossible to distinguish the reciprocal relations of all the elements that are found in sections made for histological examination. If from what has been stated we try to draw some anatomo-pathological deductions, it becomes necessary that we first fix in our minds what has been the cholesteatoma of the otologists and the pathologists. Taking away the caso-purulent masses and degenerations of various kinds that have been taken for cholesteatomata, the remainder are distinct formations which figure as such (cholesteatomata) in the books and journals.

The one kind constituted by a hyperplasia of the epidermis on an inflamed surface and formed by superposed pearly white layers; these formed in turn by flat, polygonal cells, without nuclei, resembling formations which are found in certain cases of elephantiasis. These scaly epithelia are aggregated in degenerated lumps, situated ordinarily in the centre of pearly masses and forming a tumor. In these are found sometimes microbes, and very frequently fat and crystals of cholesterine. These formations may or may not have the pearly arrangement with concentric imbrication of the epithelial layers. The partisans of the other theory consider cholesteatoma as a pearly endothelium without mixture of degenerated caseous masses, where the cells have degenerated or secreted cholesterine which is shown by the thickness of the component parts. Such is the cholesteatoma of the endothelial cholesteric type.

In support of this, if we examine these cases we notice that the first and fifth belong to the class of cholesteatomata formed by layers of epithelium, with an inflammatory base and with detritus of poly-degeneration, the group to which belongs most of the cholesteatomata described as of the middle ear.

We have not found those of pure endothelial origin, the endothelial cholesteric degeneration, but a mixture of inflammatory proliferation, and of hyperplastic formation of lamellae, probably more epidermal than endothelial. In the other cases discussed it was a simple inflammatory condition of the cavity.

The clinic does not have the elements which we need for a sure way to get a preceding investigation, because cholesteatomata are found enclosed in the antrum. It is not possible to investigate until the symptoms point especially to the trouble, and the cholesteatoma surprises us by its appearance during the operation.

Diagnosis by inspection of the tympan sometimes leads to error, as in our fifth case, where the membrane was found to be covered with fungosities and where lavage with Hartmann's sound had not brought back any product. This is contrary to what ordinarily takes place, where the material washed out leads to a positive diagnosis.

The odor is no more certain sign in this condition than is the small perforation found in the flaccid membrane. We may suspect it when there exists an old suppurating process, with or without a mastoid fistula, an odor *sui generis,* compression on the corresponding side of the cranium giving vestiges of facial paralysis, etc. But even then we cannot be positive, *a priori.*

The treatment should be in accordance with the intensity of the affection and with the pathological process, because if in the greater number of cases cholesteatoma is the consequence of a suppuration of the ear, it in turn contributes to continue it, and it is necessary to stop the suppuration at its source by all possible means. The naso-pharynx may reveal to us the presence of adenoid vegetations which we should endeavor to stop.

When there exists a perforation of the tympanum, as seen in our fourth patient, the first indication imposed is to evacuate the agglomerated masses, for which there is nothing more useful than the Hartmann sound, which permits us to send the solution into all the windings and twistings of the region. I afterwards wash out the parts with chloride of zinc, ten per cent. Then using pulverized iodoform and tampons of gauze, we sometimes complete an absolute cure. If this is not sufficient, we should then extract the malleus and incus, as proposed by Selivrate, which are often affected with fungous osteitis.

Finally, the lesion being far advanced, we should push intervention to the point of making an extended opening of the cavities of the middle ear without waiting for phlebitis of the sinus or a cerebral abscess to complicate the situation. Operation on the mastoid is delicate, but, relatively, not dangerous; for, although the statistics of Selivrate give a mortality of twenty per cent., those of Brun and of Jiussat a mortality of seventeen per cent., and those of Moure four per cent., it must be remembered that the operation has always been for the relief of a very grave condition.

Many procedures are followed for the extraction of cholesteatoma through an opening in the antrum. Some follow the operation of Schwartze, others open the posterior side of the canal after the procedure of Ruster Bergram, which does not differ from the first, except in making a larger section of the side external to the attic.

The two operations which certainly combine the best conditions for obtaining a large opening of the cavities of the ear are those of Zaufal and of Stacke. The first goes from the antrum towards the bony cavity, being guided by the fistulous tract, and lifting the external side and border of the thin bone with Lüer's forceps. The second, which is favored by Beinchar and others, begins by opening the canal from behind and interiorly as far as the tympanum. This is removed in breaking across the wall of the cell, then placing the protector in the auditory canal he removes with little blows of the chisel the external side. We follow the one or the other method according to circumstances; as in our first case, where the method of Stacke was decided on, yet that of Zaufal (of Prague) was necessary.

In 1894, at the Otological Congress in Berlin, Beinchar declared himself in favor of the post-operative permanent opening either by the introduction into the head of a plate, after Schwartze, or by cutaneous transplantation after Thiersch. Gruber expressed a contrary opinion at the same meeting. Jansen, Bresman and others agreed with Beinchar. Hamberg believed one might avoid this in the greater number of cases. Politzer closed small openings, and opened large ones. Urbantschitsch opposed the permanent fistula, as did Moure, who did not believe it often necessary.

I consider that observation of the cut surface becomes indispensable, for although the tumor may not be reproduced, yet the bony condensation consecutive to the presence of these growths may cause a destructive process in the bone in their neighborhood. Contrary to Zaufal, who employs the thermocautery, I prefer chloride of zinc for the bone and chromic acid for the fungosities.

The after care necessary is an exaggerated antisepsis and a constant watchfulness in keeping the dressings as dry as possible. According to the work of Georges and of Moure this procedure mitigates very much the cicatrization.

Conclusions.—1. From the point of view of anatomo-pathology we have studied two sorts of formations of the middle ear under the name of cholesteatoma. One made up of granular, fatty and purulent masses of detritus, with some scaly epithelia, keratin, and crystals of cholesterine; the other really formed by imbricated nodules, concentrically arranged like the bulb of an onion; nodules made up in turn, microscopically, of large flat endothelial cells, polygonal in shape, which show scarcely any colored nucleus, and which masses contain a large quantity of cholesterine.

2. The majority of cholesteatomata described heretofore evidently belonged to the first group of the first conclusion. These masses, which may be called cholesteatomata, and might better be called purulent, degenerated, epidermoid, etc., according to their constitution and origin, must not be classed as true cholesteatomata. One should distinguish them in future so as not to fall into any error.

3. One must not class as cholesteatomata those masses, made up of poly-stratifications of keratinic epithelial cells, which develop after general inflammatory skin eruptions when they act on the lining of the auditory cavity, and which are horny or keratinic formations, never true cholesteatomata.

4. Cholesteatoma may be considered as a pearly endothelium or not, as the cells are charged with cholesterine by secretion or by degeneration of their protoplasmic masses.

5. The causes of error once distinguished in the preceding conclusions, and in virtue of the conception of cholesteatoma detailed above, we hold that true cholesteatomata of the middle ear are those only which are made up of superposed endothelial cells, forming balls in certain cases, and which have scarcely any colored nuclei, and where the protoplasm is filled with cholesterine; that is to say, those formations comprised in the second group of our first conclusion.

6. Nearly all of the cholesteatomata of the ear described in the books and journals belong to the first group of the first conclusion and to that of the third. It is not difficult to show that the middle ear presents at certain points an endothelial covering. It may be possible, although rare, to meet with cholesteatoma.

7. The clinical discovery of a cholesteatomatous formation in the middle ear should be followed by a minute anatomo-pathological examination to determine the nature of the masses found. Only then can an accord between the clinical and the anatomo-pathological findings be arrived at, and observers cease to regard as cholesteatomata those clinical cholesteric-appearing masses, which in reality from the pathological point of view are different.

8. The new formations comprised in the third conclusion are malignant from the start, since they are capable of producing a perforation and the consecutive troubles.

9. Intervention should be so extensive that it will cause extinction of the process, etc.

10. In a case where it becomes necessary to make a large opening in the attico-antral cavity it should be made permanent during a period proportional to the size of the neoplasm, in order to watch for a reproduction.

AN APPARATUS FOR THE DETECTION AND MEASUREMENT OF ASTIGMIA

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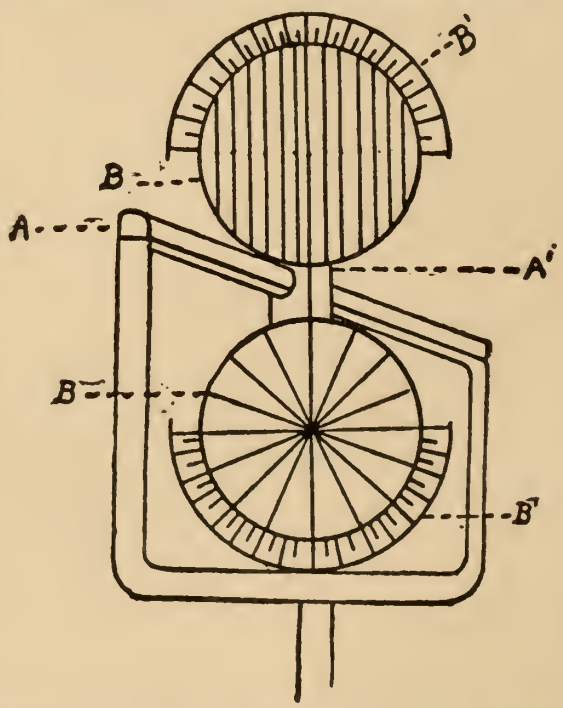
This apparatus involves no new principle. It is merely a new application of an old one. The method is subjective and, like all others of this nature, is based on the principle of the perception of a line.

Previous to the advent of Javal's ophthalmometer it was thought that a very large proportion of astigmic eyes was due to an uneven curvature of the lens, and while this instrument has demonstrated the fact that corneal astigmia is the most common form, it does not prove that the lenticular is uncommon. This form we cannot measure by any objective method yet at our command*, and as there can be unequal curvatures of the lens and the cornea in the same eye it is conclusive that subjective tests are the only reliable ones. The unequal contraction of the ciliary muscle, causing this unequal curvature of the lens, results in what Landolt calls "dynamic astigmia of the crystaline lens" and "static astigmia" when the result of a passive condition of the lens. "But," he says, "in the vast majority of cases it suffices, fortunately, to know the total astigmia of the eye without needing to concern ourselves as to what is due to the cornea and what to the lens." But whatever method we use, the conclusive test is the trial lens. A glance at the accompanying cut will aid in the explanation of the apparatus. It consists of an adjustable frame, movable up or down, the upper part being a square rod two feet long. (A) on which is a revolving bar (A′), to each end of which is attached a revolving disk (B) of tin or brass, seven inches in diameter. One disk has uniform parallel lines of black on a white background; the other, radiating ones. A scale, dividing into 180 degrees (B′) is attached to the bar and does not revolve with the disks.



To use it have the upper disk on a level with the patient's eyes and about three or four feet distant. Adjust the trial frame and cover one eye.

*Except skiascopy.—[EDITOR.]

If the eye undergoing examination is not myopic, put a —3 or —4 lens before the eye. Now, having the disk with the radiating lines on top, push the bar (A′) as far back as it will go. The whole apparatus is now moved slowly forward until the lines on the disks are just beyond the focal point. Move the bar carrying the disks slowly forward. If there is any astigmia the concave lens seems to accentuate it and certain of the radiating lines will come into focus first. Move the disk in and out of focus several times to be sure of the right lines and note on the scale the angle of these lines. Turn the bar around so that the parallel lines are on top and turn the disk so that they correspond with the angle of astigmia as indicated by the radiating lines. Carefully focus the disk so that the lines are clear and distinct.

Now turn the disk so that the lines are exactly at right angles to their present position. Carefully focus these lines by adding plus or minus glasses. The lens which is required to make the lines in the second position equally bright as those in the first indicates the amount of astigmia in that eye and the radiating lines show the angle.

To illustrate: A —3 D. lens is placed before the right eye, the other being covered. As the radiating lines are brought into focus the horizontal lines (180°) show up brightest. The parallel lines now replace the radiating ones, are made horizontal and correctly focused. They are turned exactly at right angles, 90°, and now appear blurred. A + 50 lens makes them clear and distinct. A + 50 cyl. axis 180° will correct the astigmia.

This, of course. does not indicate a correction of any other refractive errors that may exist.

TOBACCO DEAFNESS.

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New York.

Among the many diseases of the throat and ear met in this climate it is not improbable that tobacco as a factor in the cause of deafness is occasionally overlooked. Tobacco is such a compound substance, and is used in so many ways that the modes of action upon the system are varied. As a snuff the solid particles act as a mechanical irritant to the tissues with which they come into contact. In smoking the heat of the smoke and the floating particles irritate the sensitive membrane. The nicotine is absorbed by the respiratory mucosa in snuffing and by the gastric mucosa in chewing, causing a toxic effect. In smoking the toxic substance set free by the combustion is pyridine, an empyreumatic product which has an effect on the economy similar to that of nicotine, but of less severity. There are other less important alkaloids in tobacco and acids in the smoke, products which in the future may be discovered to have some effect on the nervous system. Its action upon the ear has been noticed through two channels—the irritative, affecting the mucosa of the throat and ear, and the poisonous or toxic, affecting the auditory nerve.

Another way in which smoking can affect the hearing is given by Dr. Wyatt Wingrave, of London, and is called by him "mechanical or pneumatic." He says: "This has its origin in the habit of smoking a tightly-packed pipe, cigar or cigarette, especially in those suffering with nasal obstruction. A violent minus or negative naso-pharyngeal pressure is exerted with each inspiration, not only upon the Eustachian tubes, but also upon the blood and lymph-vessels of the parts, so leading to persistent hyperæmia, etc., etc." We have observed no cases of this description yet, and can scarcely conceive how this minus pressure can be exerted continuously and strongly enough to do permanent injury to the ear.

The irritative action is the one most frequently met. We have all seen cases of stubborn hypertrophic catarrh of the nose, naso-pharynx and pharynx in old snuff-takers, caused by the mechanical irritation of the tobacco particles and the irritative action of the contained alkaloids. In chewing the irritation especially acts upon the mouth, pharynx and œsophagus, while in smoking the fumes, entering the mouth, pharynx, naso-pharynx, and frequently the nares, too, may cause a similar hypertrophic catarrh of these regions.

The middle ear, communicating as it does through the Eustachian tube with the lower anterior portion of the naso-pharynx, is frequently affected by these conditions of the nose and throat in the following ways: First—The

stoppage (or occlusion) of the nares causing a constant negative air pressure in the naso-pharynx will produce retraction of the membrana tympani. Second—A large hypertrophy of the posterior extremity of the inferior turbinated pressing on the anterior lip of the Eustachian tube may occlude it, causing its well-known train of symptoms. I recollect reading an article in which a recognized German authority held that hypertrophic conditions in the posterior portions of the nares would so interfere with the venous circulation of the Eustachian tube and eminence that after a time interference with middle ear ventilation would supervene. Third—It can easily be understood that the thickening of the pharyngeal and naso-pharyngeal membrane may obstruct the tube. Fourth—Catarrh of the nose, etc., can cause catarrh of the mucosa of the tube itself and even of the middle ear, either by continuity of tissue or by the catarrhal microbe being carried into the tube and tympanum. Fifth—In exhaling the smoke through the nose, when the nares are occluded, the fumes may be forced up into the tube. The lining of the Eustachian being even more delicate than the mucosa of the nose and throat, is very susceptible to these fumes.

It is admitted that the auditory nerve is more susceptible to the morbid poisons circulating in the blood, such as the products of the infectious diseases, than the other special sense nerves. The toxic action is caused by the absorption of the alkaloids of the plant through either the mucosa of the respiratory or digestive tract acting upon the general nervous system. The effect on the auditory nerve usually is only one of several in a certain case.

Few cases of the toxic effect of tobacco upon the hearing are recorded, and it is quite difficult to make it fairly certain that the agent is acting either alone or principally through the poisonous action on the auditory nerve, because its catarrhal effect is so frequently a concomitant occurrence.

Diagnosis of this, as in other diseases of the internal ear, must first be made from those of the external and middle ear by exclusion; i. e., observation of the luster, position and motion of the membrana tympani, testing the Eustachian tube, and the sound-conducting tests, Webber, Rinné, etc. In the other diseases of the labyrinth there are one or more of the following symptoms—pressure or fulness in the head or severe pain, vertigo, nausea and sometimes even vomiting. In tobacco nerve deafness these are all absent. In making Schwabach's test if we find more acute perception for the higher tones it makes us suspect disease of the external and middle ear; but in tobacco nerve deafness, although this is a disease of the internal ear or perceptive apparatus, in over half the recorded cases the deafness is almost entirely for the lower notes, or an acuter perception of higher tones. Diagnosis has, in many cases, been verified by the fact that relief was only obtained when the patient abstained from the use of tobacco.

In the eye where, on account of the transparency of the tissues, the pathological processes can be better studied, a chronic retro-bulbar neuritis is caused by tobacco, symptoms of which are diminution of sight unimproved by lenses, inability to recognize colors, usually red and green, in an area

near the center of the field of vision (called central color scotoma) and the objective symptoms as the condition progresses of "dirty disc" and local or general atrophy of the retina.

On account of the analogy of the optic and auditory nerves, and because some observers and especially Wyatt Wingrave, noted that more than half such patients are particularly deaf to the lower tones in the scale, it seems reasonable to consider that a condition obtains in the auditory nerve similar to that in the optic nerve.

As the distribution of the auditory nerve in the cochlea is the counterpart of the distribution of the optic nerve in the retina, and retro-bulbar neuritis is an interstitial inflammation of some (papillo-macular) fibers of the optic nerve just central to the retina; it is very probable that the pathology of tobacco nerve deafness is a neuritis of the auditory nerve just central to or outside of the cochlea.

We should state that all recorded cases were in heavy consumers of the stronger grades of tobacco (Century, B. L., Ivanhoe, etc., of the smoking tobaccos, and Battle Ax, Climax, Piper Heidsick of the chewing), and the majority were partakers of alcoholic beverages beyond moderation.

Case I.—In Dr. Whiting's clinic at the New York Eye and Ear Infirmary. A laborer gradually became deaf about six years ago, accompanied by tinnitus. The mucous membrane of the nose and naso-pharynx moderately hypertrophic, but ausculation of Eustachian tube showed it to be pervious. Membrana tympani objectively normal. H. d. (acoumeter) R. = 6 ft. L. = 8 ft.; Rinné both +; report from eye clinic is that there is scotoma in both eyes, and reds appear brown. Treatment was strychnia and abstinance from tobacco. Nine months after, hearing normal.

Case II.—J. F. A hostler, aet. 46 years, nose and throat mucosa slightly thickened. Auscultation demonstrated Eustacian open, drum head not thickened or retracted. H. D. = (acoumeter) R. = 12 ft.; L. = 12.; Rinné = R. +, L. —; C. III. and C. IV. were heard, while C. — I. was not. This man chewed and smoked almost constantly, using a pipe. After considerable argument his rations were reduced to three pipefuls of Durham a day. Formerly used one-half ounce B. L. plug-cut daily. Rx. strychnia 1-60 gr. t. i. d. every alternate week. Hearing almost normal in little less than a year.

Judging from the experience of others if he had given up tobacco entirely his cure would have been much more rapid. Some authorities do not think cure can be obtained without total abstinance.

DISCUSSION.

Perry Dickie, M. D.,

Brooklyn.

The toxic action of tobacco on the auditory nerve and its appendages is especially likely to occur in persons whose aural apparatus is below par.

In these cases the practice need not be excessive to cause the trouble. We find a counterpart of this disease in the eyes—tobacco amblyopia.

Those of us who are addicted to the use of the "weed" are as a rule loth to admit any injurious property in it such as this, and do so only with reluctance and when we cannot lay the blame on something else. Still, we must concede the fact that the general opinion of the medical profession is that tobacco is a recognized etiological factor in all nervous diseases, including also that of the labyrinth and auditory nerve. This action of tobacco is indirect and direct. The former by inducing a chronic inflammatory condition of the pharyngeal mucous membrane, which extends through the Eustachian tube to the middle ear and sets up an ordinary form of otitis. This is always a possibility and is of quite common occurrence. The most important to us, however, in this relation, is that form where we have a direct toxic action on the auditory nerve and its structures in the labyrinth.

The subject of tobacco deafness is not by any means new and is one in which I have ever been interested, advising against its use in all forms. But what has of late lent additional interest to the subject is a report by Wyatt Wingrave of seventeen cases of deafness attributed by him to excessive smoking. In this paper he lays particular stress on three important points: (1) Well-marked cases of deafness in inveterate smokers. (2) Loss of lower tone perception in fifty per cent. of these cases. (From this we would infer that the inner part of the basilar membrane of the cochlea was involved in the process) (3) Improvement in eighty per cent. of these cases on abstinence from the use of tobacco, with ultimate cure in some of them.

Because several aurists have met cases of nerve deafness aggravated by smoking and which improved on discontinuance of the habit, I insist on the complete abstinence from tobacco in all my treatments, especially where there is an involvement of the internal ear. Where this latter condition does not yet exist, I explain to my patient the possibility of its being brought on by the use of tobacco. It is the experience of all of us that even the most constant and inveterate smokers are not willing always to admit that they indulge "much," and unless we bring them right to the point as to the number of cigars they consume a day or the actual amount by weight of tobacco that they chew, we will not be able to judge the extent of their habits. I have found tobacco to be of some value as a therapeutic agent in this trouble when functional testing demonstrates involvement of the auditory nerve and its structures in the labyrinth, especially if there be marked vertigo.

In one case of deafness, presumably from tobacco, as there was no other cause evident, complete abstinence was insisted upon. A course of strychnia phos. 2x—the physiological antidote of nicotine—was prescribed for a few weeks, followed by tabacum 6x and conium 6x for a vertigo which remained. Under this treatment the patient regained a comparatively fair degree of hearing.

SOME OF THE CONDITIONS IN SYPHILIS OF THE BRAIN

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Conditions in the brain producing symptoms or diseases of the eyes may be either focal or diffuse. To the former belong all tumors, hæmorrhages and softenings. These focal brain lesions may be conveniently classified under two heads, namely, those that cause an increase in intra-cranial pressure, and those which do not have this effect. Among the former are syphilitic and tubercular growths, tumors, aneurisms, paralytic and simple cysts and abscesses. Those not accompanied by increased intra-cranial tension are mostly hæmorrhages and softenings.

Cerebral tensions and growths by reason of this increased intra-ocular pressure, are accompanied, in a large proportion of the cases, by symptoms not usual in other diseases of the brain. These general or diffuse symptoms indicate the presence of an intra-cranial growth. The three principal symptoms are headache, double optic neuritis, nausea and vomiting. There may be also vertigo, drowsiness, mental lethargy, and attacks of temporary total loss of sight.

Beside these general symptoms tumors and other focal diseases which do not cause intra-cranial pressure are accompanied by symptoms which indicate the seat of the lesion. These may be paralytic or irritative, according as the lesion has destroyed the part or simply irritated it.

There is also another class of symptoms, which include pressure symptoms and others not due to local disorganization, but may result from pressure, disturbances of circulation, inhibition or reflex irritation, interfering with healthy portions of the brain more or less distant from the seat of the lesion. These symptoms, which have been called "distant symptoms" by Swanzy and others, are often very short-lived, but may cause much confusion in making an accurate diagnosis, from simulating direct symptoms. Tumors and growths causing intra-cranial pressure are much more likely to be attended with distant symptoms than are those not causing any increased pressure.

Another peculiar fact in connection with focal brain disease is that it may give rise to no direct symptoms, these lesions having been found in almost every part of the brain. Absolute latency of a growing cerebral tumor, however, according to Bramwell, is very rare. "The presence or absence of double optic neuritis or papillitis," says Bramwell, "does not necessarily

exclude the presence of a tumor; but the fact that there is no optic neuritis does suggest doubt; and, unless the other symptoms of tumor are very clearly defined, or unless the physician feels satisfied that there is no condition present except tumor which could reasonably be expected to account for the phenomena of the case, he will be wise, in the absence of double optic neuritis, to hesitate before committing himself to a positive diagnosis."

It should be borne in mind that a tumor elsewhere in the brain is as capable of producing optic neuritis as one connected with some part of the brain having a distinct relation to vision. Large growths cause papillitis most frequently, but a small and slowly forming one may be the starting point, not only by pressure, but by causing dropsy of the ventricles, which is frequently present in an extreme degree.

Optic neuritis due to intra-cranial tumors was, until recently, supposed to have a special form in which the swelling of the papilla is great and abrupt and its margins defined, while the central artery is diminished in caliber and the central vein engorged. It is the form most commonly found, but other forms where there is little swelling of disk and almost no alteration in the vessels have been noted. This same condition of the papilla is found in other lesions and may be accompanied by retinal changes that simulate albuminuric retinitis. In all cases of double optic neuritis the urine should be carefully examined at once. While optic neuritis is the first, or one of the first and most valuable, symptoms of cerebral tumors, it may not develop until late in the disease and in about 20 per cent. it is not present at all. Neuritis is likely to be double in these cases, but may be unilateral and usually is found as a choked disk in one eye and as a neuritis in the other.

Dr. Herman Wilbrand, of Hamburg, takes the ground that syphilis of the brain is usually a gummatous meningitis at the base, with syphilitic disease of the cerebral arteries; less frequently it is a large isolated gummatous tumor. It is known that gummas are the commonest basal lesion which causes paralysis of the cranial nerves. The optic and other nerves connected with the eye may be "strangulated by the arteria corpora callosi or by pressure from the carotis interna, where this vessel lies in contact with the under surface of the intra-cranial optic tract." In the optic nerve, according to Wilbrand, there is a descending neuritis with hydrops of the sheath of the optic nerve and sometimes gummatous degeneration of the intra-cranial optic tract. In 167 autopsies of syphilitis of brain, lesions of the optic apparatus were present in 101 cases, of which 66 were of the oculo-motor nerves, 29 of the abducens and 6 of the superior oblique, and in 25 the trigeminis was also involved.

In the following cases two types are shown. In the first there was probably extensive gummatous inflammation of the base, involving other portions of the cerebrum by direct or distant symptoms.

Mr. W. was a traveling salesman, about 42 years of age, married but childless. He confessed to having been treated more or less constantly, but not with much activity, for twenty years for syphilis. While in Rochester he suddenly lost the function of locomotion with a loss of motion in the arm, with considerable difficulty in talking. He was at once sent to his home in Brooklyn. When seen by the writer at the request of his physician the next day he was found to have partial ptosis and total paralysis of the oculo-motorius of both sides, the pupils being widely dilated. The fourth and sixth nerves were not affected. The trigeminis was probably also involved. There was so much mental lethargy that it was almost impossible to state whether sensation was less in the region of face and head than elsewhere. He was aroused with difficulty, was able to protrude the tongue only with great effort and with a jerky, uncertain movement. There was ability to move each limb singly, but no co-ordinate action of either arms or legs was possible. He took food in limited quantities if fed to him, as he was unable to hold anything in his hand. There was almost aphasia, a few guttural, indistinct sounds being the only semblance of speech left to him.

He remained in this semi-comatose condition for nearly two weeks, aroused with difficulty to take food and medicine and to have the bowels moved mechanically. The urine at first had to be drawn with a catheter, which was passed with difficulty on account of old urethral adhesions, but in about two weeks it began to be passed naturally. This was one of the first of his functions to return. During the whole time of his confinement in the house, which was six or eight months, it was necessary to use enemas to relieve the bowels.

The fundus was perfectly normal, except for a slight paling of the optic disk and a slight diminution of the caliber of the retinal vessels. He had, however, only perception of light for several weeks after the attack. Hearing was also blunted, but this was probably due to his mental condition and not to any change in the auditory apparatus. It was impossible at any time to get an accurate field.

Treatment.—His wife gave a straight statement of his syphilitic history on my first visit, and also showed me the last prescription his physician had given to him, and which he had taken at intervals for the past six or eight months. It was a weak solution of the chloride and bichloride of mercury. He was at once given potas. iod. in doses increasing from 4 grs. per day (1 gr. per dose) to 50 grs. per day divided into four doses. The dose was then gradually decreased daily until he was taking 10 grs. daily, and then ran up again to 60 grs. in 24 hours, increasing the dose daily about 2 grains. These cycles of increasing and decreasing doses were continued, the maximum dosage being extended each time 10 to 20 grs. and the min-

imum not going below 20 grs. In this way the maximum for three days at two cycles was 360 grs. (90 grs. four times per day).

After the first week improvement began and continued steadily, but slowly, for about eight months. At first it was much more rapid than toward the end, and finally, on the advice of friends, but against my protest, they decided to drop drugs and employ electricity. This was tried for several months, but he made no advance, and recently he has been, apparently, in about the same condition as when he ceased the use of the KI.

When the functions began to return he had to be taught like a child, first to hold his fork and spoon, and, gradually, how to feed himself. He was then taught to walk, at first with a chair, then with canes, and finally with one cane, which he yet has to use. The movements of his feet are very uncertain, being not unlike a person with tabes, and he frequently falls, although he goes about the street unattended. His speech is also thick, and he has difficulty in getting the right word to express his thoughts. His mental condition is as bright as ever, but his writing, which was formerly very neat and legible, is scrawling and like that of a schoolboy. Vision and hearing were among the first functions to return, and the paralysis of the ocular nerves early disappeared, leaving the eyes in the almost normal condition of refraction and otherwise in which they had been previously. He took the KI. even in these large doses without a menstruum, and, although carefully watched, never showed the slightest disturbance of the stomach or any symptom of poisoning. His appetite was inordinate and had to be curbed during the whole time he was under this treatment. In this case the focus of the lesion was basilar and probably in the interpeduncular space with involvement of the optic tracts, as there was only light sense on both sides for sometime. It is the usual rule, to which however there are many exceptions, to have the double third nerve paralysis of this condition accompanied by paralysis of the fourth, fifth, sixth or seventh nerves. These basilar lesions, involving as they do one, two or more of these cranial nerve trunks, attack as well the optic tracts, the optic commissure, and the cerebral peduncles. In syphilitic disease, with gummatous exudation, may be found occasionally symptoms from widely separated structures, without interference with those which intervene. "Indeed, one of the chief diagnostic features in basal lesions is their great tendency to implicate several different nerve trunks, without reference to system or function." It is a close point in diagnosis to differentiate whether there might have been in this case a lesion in the cerebellum causing the ataxy or whether the double ophthalmoplegia with the ataxy may mean that the lesion is quadrigeminal, as Nothnagel contends.

The second case is one of probably some syphilitic growth of the base involving portions of the optic tract.

W. N., a cook who has no suspicious family history, but who confesses to having had gonorrhœa six or seven years ago. When first seen he complained of severe headache, which had existed for five or six weeks, accompanied by occasional nausea, but no vomiting. The pain in the head was sharp and shooting, extending from the forehead to the occiput and nape, aggravated at night and ameliorated by lying on the painful side. For several days there had been a sharp, stabbing pain through the left eye. The vision in the left was blurred, there was vertigo when standing, the tongue heavily furred and the breath foul. The pulse was 60 and the respirations 20 per minute. The left eye showed an inmovable, dilated pupil, moderate ptosis, with paralysis of the other branches of the oculo-motorius and also of the fourth, with rotation of the eyeball upward and inward. The sixth nerve was not involved. There was some posterior synechia and the fundus showed some engorgement of the veins, with some swelling of the papilla. The latter, however, was very slight.

Under the influence of KI. and other remedies he became quite comfortable after a short interval, and the paralysis of the ocular nerves with the slight neuritis gradually disappeared and the vision, which had been considerably disturbed, returned. The monocular character of this paralysis and its cause determined its probable basilar origin.

Where the history of a case is not clear as to its specific character, pressure symptoms from a growth at the base of the brain, especially near the chiasma and the interpeduncular space, would tend to confirm it. The instability of these paralyses, which may come and go, due to the rapid growth followed by rapid shrinkage of the granulation tissue which surrounds the trunks of the nerves, would also aid in diagnosing the trouble as syphilitic. If it is a syphilitic lesion and absolute blindness has come on, Swanzy bears testimony that a cure may often be effected to such an extent as to restore useful or even full vision when the disk may have begun to whiten, provided the disease has not lasted longer than active syphilitic measures have been employed.

Note.—An interesting feature of this latter case—observed by us before Dr. Schenck saw the patient—was a decided oscillatory rotary movement of the eyeball about its antero-posterior axis upon endeavoring to look downward.—[Ed.]

THE IMPORTANCE OF OTOLOGY IN GENERAL PRACTICE.*

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Every year the practice of medicine becomes more and more specialized, and each year finds the general practitioner better informed in these so-called special departments than were his predecessors. Methods of examinations are becoming more and more refined, and instruments for aiding the senses in the work of making a diagnosis or applying appropriate treatment which, a generation ago, were comparatively unknown, are now in the hands of all progressive men, with the result of placing our art on a more scientific basis and at the same time enabling us to combat diseased conditions with increased success.

In marked contrast to the general use of instrumental aids to diagnosis and treatment of affections of other parts of the body stands the neglect of such means for the examination and treatment of aural disease. The same degree of application which qualifies the general physician to detect and treat the various lesions of the heart, lungs and kidney would, if bestowed on diseases of the ear, enable him to discover and check pathological changes in the middle ear before permanent alterations had occurred which baffle the most skillful.

Diseases of the ear are often of greater importance in their relation to the health and even to the life of man than are those affecting what appear to be more vital organs, and a knowledge of aural pathology and the principles of correct treatment are essential for every physician.

Affections of the ear are among the most common complaints of everyday practice, but how general is the neglect with which such affections are treated by the physician or, if treated at all, according to some routine method and without any adequate knowledge of the existing conditions.

Few of us would neglect to examine the abdomen of a patient who complained of a pain near McBurney's point, yet many see no necessity for examining the ear of a child who complains of earache, which may be the precursor of a suppuration, curable by simple means in the beginning, but, when neglected, entailing years of discomfort if nothing more.

Diseases of the ear begin in infancy and are to be met at every stage

*Read before the N. Y. State Hom. Med. Society.

of life. Many of the diseases peculiar to children are especially likely to be complicated with coincident or resultant affections of the middle ear. Measles, scarlet fever and diphtheria are practically prone to leave acute suppuration of the middle ear as a sequel, the treatment of which is often of such a careless character as to amount to practical neglect. The acute suppuration which follows infectious diseases is entirely curable, and it should be considered malpractice to discharge a patient as cured who still has a suppurating ear as a result of these conditions.

The majority of parents do not realize the danger of neglected suppuration, and it is as much the duty of physicians to inform them on this point as to warn them of the danger of infection in diphtheria. Both conditions are a menace to health and life, and nothing should be left undone to afford protection from the ravages of either.

In later life the ears are likely to become affected as the result of ordinary acute catarrhal colds to which so many are subject, especially such as are predisposed because of the existence of adenoids, hypertrophied tonsils and chronic naso-pharyngeal catarrh. According to von Troeltsch, of those in adult life one out of three is hard of hearing. This shows how widespread is aural disease and how important it is for physicians to be thoroughly equipped for its detection and treatment. In many cases deafness is the result of recurring attacks of catarrhal inflammation of a low grade with none of the marked subjective and objective symptoms found in the suppurative form. These are most serious as regards loss of function, as the patient suffers only slight inconvenience at the time of the attack, and unless warned of the possible results of acute naso-pharyngeal catarrh in loss of hearing, may become very deaf in one ear before applying for treatment.

The influence of impaired hearing on the mental development of children and their prospects of success in later life cannot well be overestimated. Children who are more or less deaf learn less readily than their fellows, often acquiring a reputation for stupidity which may discourage effort and cut short the period of school life, with a consequent limitation of mental resources. Social intercourse is hampered by the difficulty of hearing conversation, and the educational advantages to be gained from intercourse with superior minds or from attendance at public functions such as lectures, theatres, etc., are to a great degree lost.

In young adults entering business or professional life the handicap of deafness becomes more and more marked, for the loss of function is usually progressive. In almost every occupation fairly good hearing is essential to success, and many are barred from positions they would be otherwise well qualified to fill if their parents or physicians had recognized and treated their infirmity while yet there was time to arrest its progress.

Aside from the manifold inconveniences which deafness entails, aural disease must also be considered in relation to the physical well-being of the patient. Defective hearing adds one more factor to the ordinary hazards of our daily life. In this age of rushing trolleys and automobiles one needs his every sense alert to avoid danger. To the deaf man the crowded streets with their confusion of sounds become much more dangerous than to one whose eyesight is aided by acute hearing; for while we can see in only one general direction at a time, sound comes to us from every side, and the hearing man may be warned in time of unseen dangers which are non-existent to the deaf until too late. The accident insurance risk for a man with impaired hearing is certainly greater in large cities than for one of normal power.

A still greater menace to life, however, is carried in the head of the patient, who may perhaps have suffered from chronic suppuration of the middle ear for years with no sign of extension to the neighboring tissues, yet all the time the caries of the bony walls of the tympanic cavity may be steadily progressing, awaiting the time when the pus focus shall develop an intensity of inflammation that will carry away the barriers and invade the very citadel of life. All cases do not thus terminate; any case may so terminate.

While the progress of modern otology has opened our eyes to the dangers of aural suppuration, it has not yet enabled us to cope successfully with more than a small proportion of the cases that go on to the formation of brain abscess, epidural and subdural abscess, and sinus thrombosis, but it has taught us that these conditions may be averted and the function of hearing preserved by prompt and intelligent treatment of aural disease in its incipiency.

THE AMERICAN HOMŒOPATHIC OPHTHALMOLOGICAL, OTOLOGICAL AND LARYNGOLOGICAL SOCIETY.

The seventeenth annual meeting of the American Homœopathic Ophthalmological, Otological and Laryngological Society will be held in Niagara Falls at the time of the next meeting of the American Institute, beginning Monday, June 20, 1904, and continuing with two or more sessions daily until the work is completed. There will probably be two sessions on

Monday and two or three on Tuesday and Wednesday until the reading and discussion of papers is concluded.

The last sessions will be devoted to materia medica and surgery. For the materia medica it is proposed to have the members present cases that have been cured by the administration of a single drug where the adjuvant treatment, if any were used, had no demonstrable effect upon the result. Not to exceed seven minutes will be taken in presenting the salient points of each of these cases, giving the symptoms upon which the prescription was based. Others will then be asked to contribute cases showing results with the same drug, and the case will be open for general discussion. A good many cases have already been promised, and we shall probably have one or more very profitable sessions discussing materia medica.

The surgical clinic will be held at the close of the meeting in the Niagara Falls Hospital, which has been placed at our disposal. We have already a fairly good clinic arranged, which will probably be greatly augmented by the time we meet. If any member has a case in mind suitable for such work we shall be glad to have him or her communicate with the president.

An exhibition of new appliances, new instruments and modifications of old ones will be held in connection with the meeting. Members and others interested in the specialties covered by the Society are requested to notify the president of anything they may have to show us in the way of pathological specimens or instruments. Any one interested in eye, ear, nose or throat diseases will be welcomed to our sessions, and we shall be glad to have them contribute to the discussion or in any way take part in our meeting.

The sessions will be arranged so as to interfere as little as possible with the business sessions of the Institute or those in which all homœopathic physicians are interested. All things point to as successful a meeting as those of recent years, which every one who has been fortunate enough to attend has found full of fruitful work.

HERBERT D. SCHENCK, M. D.,
President.

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CONCUSSION OF THE LABYRINTH CAUSED BY SHOCK OF HIGH POTENTIAL ELECTRIC CURRENT.*

Dr. F. Rohrer.

Concussion of the labyrinth of the ear and of the auditory nerve can be produced by traumatism, by sudden compression of the air in the external meatus, or by the impact of a loud sound or the accumulative effect, if repeated, of feeble sounds. We know very well the different signs of this grave and painful state, and also we infer the affection of the internal ear in relation to the concussion of the whole skull, brain, os petrosum and labyrinth, directly or secondarily, by compression of the endolymph in consequence of the centripetal motion from the apparatus of the conduction of the sound.

I have never found any mention of concussion of the labyrinth caused by the influence of high potential electric current, but we can readily understand such an occurrence in view of the deadly consequences following such a kind of trauma. I happened to treat a man who came in contact with an electric current of high potential—about 250 volts and 40 to 45 amperes. The man, on an electric crane, slipping, seized a conducting cable-cord. Immediately he felt a terrible shock of his whole body, and fell. He lost speech, and could cry out only with full lungs. For five minutes the poor man was fixed on the cable in this dreadful condition, and was nearly dead when the dynamo was stopped. For half an hour the man was unable to walk or to stand; he had a headache, and was dizzy, swaying as though tipsy. The dizziness was associated with a sense of oppression on the head and noises in both ears; this state of giddiness lasted three or four weeks, and the loss of the static sense was accompanied with neurasthenic signs, so that a *traumatic neurosis* was present. The patient lost his appetite, and acute rhino-pharyngitis occurred; the tonsils became swollen, respiration was difficult, he snored, and every morning epistaxis appeared for several minutes; the memory diminished to a state of aprosexia. The accident occurred December 28, 1900, and the patient was under the treatment of the doctor of the works until January 14, 1901. The hearing was a little diminished and veiled, but I found at this time audition for the whispering voice 3 metres, and conversation voice 6 metres, for both ears. The patient looked disturbed, weak, and nervous—"facies nervosa."

High sounds were heard very easily. Galton's whistle 15 and König's rods to C_9 on both the ears. Also deep sounds were normally heard from 12 to 36 vibrations by bone-conduction from the skull, and by air conduc-

*From *The Jour. of Lar., Rhin. and Ot.*

tion near the meatus from 14 to 36 vibrations on both sides tested by Appunn's contra-bass tuning-fork. Weber's test was indifferent, no lateralization, and the duration of perception by bone-conduction was diminished.

		By Patient.		*Normal.*
Vibrations	4,096 c5	= 10 seconds	...	6 seconds.
"	2,048 c4	= 16 "	...	18 "
"	1,024 c3	= 16 "	...	18 "
"	512 c2	= 16 "	...	26 "
"	256 c1	= 12 "	...	11 "
"	128 c	= 10 "	...	12 "
"	1,024 c3	= 22 "	...	20 "
"	440 a1	= 31 "	...	41 "
"	264 c1	= 14 "	...	23 "
"	110 A	= 21 "	...	55 "
"	64 C—1	= 18 "	...	40 "

Gelle's Centripetal Compression.

	Air-conduction.		*Bone-conduction.*
Left ear.....	+	:	+
Right ear.....	+	:	+

Stopped Organ-pipes.

880 vibrations a2 = f5 5,632 vibrations.

Left ear.....	+	:	+
Right ear.....	+	:	+

My treatment consisted in pneumatic applications with Politzer's proceeding, catheterism, Delstanche's rarefacteur, feeble galvanic constant current (cathodal) of 5 to 7 milliampères, injections of warm salt water in the aural meatus and in the nose, and the "galvano-caustic puncture" over retro-auricular parts of the processus mastoideus on both sides and on the neck. The latter proceeding I have practised for more than fifteen years, with remarkable results as a derivative of powerful effect, and mainly to combat giddiness from different causes. In this case the vertigo passed away gradually after some days, and the "facies nervosa" became a visage of normal aspect. Laxatives and warm foot-baths aided the cure, and in two weeks the man resumed his work in the electric works. The reflexes of the pupils, of the facial nerve, and of the patellar-cubital and nuchal tendons were perfectly normal. The tuning-forks gradually showed an increase in bone-conduction. On February 9 they were as follows:

c5	= 15	seconds	time	of	perception.
c4	= 16	"	"	"	"
c3	= 18	"	"	"	"
c2	= 20	"	"	"	"
c1	= 11	"	"	"	"
c	= 13	"	"	"	"
c3	= 25	"	"	"	"
a1	= 32	"	"	"	"
c1	= 19	"	"	"	"
A	= 34	"	"	"	"
C—1	= 24	"	"	"	"

I think that this case is interesting enough to be published, for the pos-

sibility of seeing similar patients grows with the increase of electric installations producing high potential currents, and with the frequency of the accidents due to the influence of this powerful phenomenon of nature. The alteration of the ear by this kind of "commotio labyrinthi" consists either in a tetanic concussion of the endings of the acoustic nerves, or in consecutive paralysis and torpor of the central fibres and origin of the acoustic centers in the brain. The vertiginous signs, similar to "Ménière's symptom-complexus," must be produced by a strong disturbance of the semi-circular canals and ampullæ, in grave cases with bleeding in the membranous parts. To the local troubles must be added the general disturbance of the whole nervous system, in the form of "traumatic neurosis" and dysthymia of the body and of the various functions.

PTERYGIUM OF THE UPPER LIDS.

Dr. Monphous, St. Malo.

(Translated from *Die Ophthalmologische Klinik* by F. E. Rabe, M. D., New York.)

A 22 year old nun suffered for several days with a subacute keratitis of the right eye. Three months ago she had a similar affection, from which she recovered in a week without attention; previously never had eye trouble.

On examination the right eye showed on the upper and outer quadrant of the cornea a slight opacity with slight inflammatory action as if caused by trachoma. This was my first idea, trachoma, but in turning over the lid there was a remarkable find.

The connective tissue of the upper lid was covered with a small thin membrane of a three-cornered shape; its color pale red, paler than the connective tissue on which it was founded. The point of the triangle was 2 mm. outward of the median line, was prominent and then spread somewhat, ending about 3 mm. from the free edge of the lid. The base of the triangular membrane spread out, widening till it reached the fold of the ocular conjunctiva, its implantation extending from the external canthus to the inner tear caruncle, and lost itself in the connective tissue near the caruncle.

After anaesthetizing the eye I grasped the membrane with forceps and found that the apex was adherent to the mucous membrane and the tarsal cartilage, while the body of the membrane, the middle and basilar parts

could be raised. A blunt probe could be passed under it about 1 mm. near the apex and several mm. toward the center; the further from the apex the further the probe went.

I advised an operation, which was refused. The left eye looked intact, but upon everting the lid the same condition was found, except that the membrane was smaller and the apex more externally located, so that it did not irritate the cornea.

From the above description it can be seen that all appearances and conditions were the same as pterygiun bulbi. The intimate growth of the apex in a region where the mucous membrane is thin with tarsal membrane beneath gives an exact picture, as in the ordinary pterygium, the apex developing in the mucous membrane and cornea. Towards the base it is looser, exactly as in pterygium bulbi.

A short time ago I saw the patient again; at the expiration of five years the conditions are the same, only the apex seemed a little flatter, probably due to the mercurial ointment prescribed.

Without going into the theories of the cause of pterygium I would like to say that the above description makes me agree with Poncet, that it is of bacterial origin. The inner angle of the eye with its caruncle and the half moon-like fold of mucous membrane afford good territory for the development of bacteria.

REMOVAL OF COCHLEA AND SEMI-CIRCULAR CANALS; RECOVERY.

R. L. Culbertson, M. D.,

Zanesville, O.

Mr. H. N. (Greek), age 22 years. Two months previous he took cold and had pain in the left ear. Soon after the ear discharged, but there was no pain back of the ear. His otologists applied ice to the mastoid for weeks and used leeches also November 9, 1902. Temperature 100°. The next day a Stacke-Schwartze operation was performed; finding the cells shallow and much diseased, and the ossicles entirely necrosed, all of antral cells, all mastoid cells and a small portion of inner plate of mastoid were removed

and a small portion of necrosed bone from about the facial nerve. No paralysis followed.

November 20.—Operated again and removed all the tip and all the inner plate of mastoid; all bone over lateral and transverse sinus as far as occipital bone; portion of bone over the temporal lobe about the size of a silver half dollar; also zygomatic cells and part of bone from around facial, slightly injuring facial (recovered from this in a few days). Healing was rapid. Temperature continued normal for some time, but there was still a purulent discharge, tinnitus like locomotives whistling and blowing off steam, birds singing, etc. Also extreme dizziness causing him to grasp something to keep from falling.

December 21.—Operated again, removed nearly all the tegmen tympani, also all the cochlea and semicircular canals and diseased bone from around them (all cells in this region were removed), removed all the bone from around facial as it was diseased throughout the path of the canal except the portion of the tegmen tympani; facial nerve was unavoidably cut. Bone over carotid canal found to be healthy. Portion of the petrous bone back of canals and next the cerebellum removed as far as internal aspect of internal auditory canal, all bone between lateral sinus and Fallopian canal removed and portion over jugular bulb; bulb high-placed, vaginal process scraped. Slight injury to sinus and jugular at bulb; this was tightly plugged, all hæmorrhage arrested, and wound dressed with iodoform and stearate of zinc and iodoform gauze.

December 26.—Temperature normal; no dizziness, no nystagmus; eyes not turned to left; patient sat up in bed. March 20, discharged cured. Facial paralysis slightly improved.

Case II.—Removal of cochlea, the semicircular canals remaining. Sister M. De C., age 21; a well-marked case of mastoid disease from influenza.

July 22, 1901.—Stacke-Schwartze operation; lower cells of mastoid healthy and cells very shallow. Disease located in antral cells and cavity of tympanum. Malleus and incus removed.

July 28.—Temperature normal; August 10, temperature, 99.8°; very offensive pus discharged, patient very dizzy.

August 16.—Opened all mastoid cells; no disease below; found few more diseased cells in antrum and tegmen tympani; cochlea badly involved and removed entire; semicircular canals normal, removed small portion diseased bone from over facial. Facial not improved (used electric battery in locating facial).

August 20.—Temperature normal; dry dressing; wound slowly granulated; some offensive discharge for several months due to escape of labyrinthine fluid which formed an excellent medium for germs. This gradually ceased and wound closed, and she made a complete recovery, save that she was totally deaf in that ear.

ABSTRACTS FROM CURRENT LITERATURE

The Arch of the Palate.—HENRY L. SWAIN.—*The Laryngoscope.*

After giving the substance of the thorough articles by Grosheintz and Alkan, and examining the skulls in the Marsh collection of different nationalities, the author draws the following conclusions:

First—That it is possible by deforming processes which artificially alter the shape of the skull to produce a change in form and shape of the hard palate.

Second—That under these above mentioned conditions the septum seems to conform itself to the altered development of the rest of the face, rather contrary to our previous ideas regarding the habits of this structure.

Third—That if from arrested or retarded development of the superior maxilla the palate fails to descend to its proper level, a bent septum is as liable to be produced as when the palate is arched too greatly by an unnatural narrowing process. Hence a palate of perfectly normal height as compared to breadth may produce a bend in the septum.

Fourth—That in considering the various causes which produce the abnormalities of the palate, we must lay more stress upon the lack of proper aeration of the maxillary sinuses retarding their development, and hence that of the whole superior maxilla.

Fifth—The conversation and general care of the deciduous teeth help to produce a normal horizontal curve in the hard palate and lessen the tendency to narrowing.

My Latest Improvements in the Radical Treatment of Chronic Suppurations of the Accessory Cavities of the Nose.—DR. LUC, Paris.—*Annals of Otol., Rhin. and Lar.*

MAXILLARY *Sinus.*—Surgical treatment is to be strictly limited to the chronic forms. Distinction should be made between those sinusities caused and maintained by primitive infection of the mucosa of the antrum soon ending fungous degeneration of its tissue, and those in which the pus merely drains from the frontal or ethmoid. In the Caldwell-Luc operation the

author makes the opening between the antrum and nares one-third the size of the naso-antral partition, therefore a portion of the inferior and middle turbinal needs removal, actually making the antrum a portion of the nares, so that it is likely to be cleaned as well as the nares when the patient blows the nose.

Frontal Sinus.—Where the frontal sinus is of ordinary or small size he still employs the Ogston-Luc operation. But where the sinus is large the opening in the latter between the frontal sinus and the nose is insufficient, the method devised by Killian is employed, to wit: "In imitation of the Ogston-Luc it implies the immediate closure of the wound and the consecutive drainage by the nose. Like Jansen's method it opens the floor of the sinus. Like Kuhnt's it removes the greatest part of the anterior wall; but its chief originality consists—first, in preserving between the two mentioned breaches a sort of bony bridge corresponding to the orbital arcade, which greatly preserves the normal aspect of the face; second, in extending the inferior bony opening to the ascending branch of the maxillary bone, which gives the surgeon hitherto unknown facilities for widening the fronto-nasal outlet and curetting the ethmoidal cells." "This is the surest and safest method for radical cure" in a large sinus.

Ethmoidal Cells.—The author mentions three methods of surgical procedure: (1) Through the normal way of the nose, (2) during the maxillary operation, and (3) during the frontal operation, and says "there is no possible hope of destroying completely the ethmoidal labyrinth through the nasal cavities," for while the middle and posterior ethmoidal cells may be removed the most anterior one cannot be reached. The author has "abandoned entirely the use of the so-called nasal curettes," but has devised "special forceps whose blades are large enough to seize much at a time and flat enough to easily thrust into the deepest and narrowest recesses of the middle meatus." (These are made by M. Vaast, of Paris; three sizes.) With these the middle turbinal is torn away with a rapid twisting movement—any brittle trabecula of bone met by the forceps is to be removed. Bleeding during this procedure is profuse and is staunched by packing with dry gauze strips. When the ethmoidal sinusitis complicates either maxillary or frontal sinusitis the nasal operation just described should be made as a preliminary step to the Caldwell-Luc operation for the antrum and the Killian for the frontal.

Sphenoidal Sinus.—In choice of method of operation we must consider (1) if the nasal fossa is spacious enough and there is *no* complication of the maxillary it is best to open through the anterior wall, making a large opening in order that it will remain permanent for future drainage. Deflections of the septum, enlarged turbinals and other obstructions in the nares should be previously operated upon. (2) While on the other hand,

if the maxillary antrum is diseased this is by far the safest and easiest way to open into the sphenoid sinus, as was shown by the experience of Jansen, Furst and the author.

The Microscopical Examination of the Discharge in One Hundred Cases of Middle Ear Suppuration, with an Analysis of the Results, Having Special Reference to the Presence of Tubercle and "Acid-fast" Bacilli.—WYATT WINGRAVE, M. D.—*Annals of Otol., Rhin. and Lar.*

Conclusions.—This investigation shows that acid- and alcohol-fast bacilli are demonstrable in a large proportion of chronic purulent ear discharges. That in seventeen cases they were presumably tubercle bacilli, in so far that they conformed to the recognized morphological and staining characters, and were for the most part associated with reliable clinical evidences of tuberculosis. That in seven (pseudo-tubercle bacilli) cases, while conforming in a greater or less degree to the staining requirements, they were morphologically unlike tubercle bacilli, yet five of them had either a family or personal history of phthisis.

That success in their demonstration in any great measure depends upon the methods of collecting and staining together with perseverance in search.

That in the peculiar selective action of the *squames* in retaining the carbol fuchsin—(a property specially attributed to certain bacilli)—we have at once a possible source of error in diagnosis and an explanation of the peculiar affinity of other bacilli for fuchsin."

A Case of Empyema of the Frontal Sinus with Complications—T. W. MOORE, M. D.—*The Laryngoscope.*

A man, aged 38. About a year previous had influenza which left him with a frontal headache; sanguino-purulent discharge from left nostril occurred every few weeks. This continued six months, when they ceased, and a swelling of the forehead supervened. Weight decreased from 180 to 115 pounds. Temperature never above 101° F. Skin of forehead of doughy feel, slightly œdematous, right eyelid much swollen, closing eye, with fluctuation on outer half. Incision of eyelid released considerable pus and probing disclosed necrosed bone. At subsequent operation it was found

that the outer table of the frontal bone was dead to the extent of 3 x 10 c. m., and the inner table, 2 x 6 c. m.; the sequestra were soft as charcoal, and were removed, a gauze drain inserted through to nose and another from the upper extremity of incision on forehead to the surface. Patient was discharged cured in two months.

"The remarkable features of this case are: (1) The opening of an empyema of frontal sinus nearly 4 c. m. above the root of the nose in median line. (2) The extensive destruction of inner table of skull with no meningeal symptoms. This was probably due to the outer table giving way first. (3) The length of time that elapsed (six months) after cessation of pain before pus showed any disposition to appear externally. (4) The peculiar course taken by pus, burrowing under periosteum to eyelid and opening near external canthus."

Lupus Vulgaris of the Respiratory Mucous Membranes as It Occurs and Is Treated in the Finsen Light Institute of Copenhagen. —Hans B. Christiansen.—*Jour. Lar., Rhin. and Otol.*

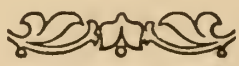
Three-quarters of the cases of lupus of the skin are accompanied by a similar condition of the mucous membranes. "In the majority of cases the mucous affection has occurred first;" this should always be borne in mind by the oto-laryngologist. Is most frequently found on "the foremost part of the nasal cavity, partly septum, partly the lateral walls of the vestibulum, especially the foremost end of the lower turbinated," next most frequent on the lips and upper gum.

"The affected part is swollen as a whole, deep red in color, granulated with small nodules of a brighter red and white epithelial scales." Miliary tubercles and ulcerations are frequently found. "The absence of pain and of other subjective symptoms, the torpid appearance of the affection and its chronicity are characteristic points."

The Finsen light may be used where it can be focused by the "compress-glasses" applied directly to the part, such as the front of the gums, lips, tongue and nasal vestibule. Healthy reaction shows itself as a hyperamia in the less affected cases, and in the more marked as a loss of epithelium. Longer intervals should intervene between treatment of the mucosa than skin. Scarification nor scraping are ever employed in the Institute. Where light is not applicable, in deeper localities, the following are resorted to: Each individual nodule itself is punctured with galvanocautery, care being taken not to extend the cauterization into the non-infected tissue. ℞. Iodi, 1 grm.; potas. iod., 2 grm.; aqua dest., 2 grm.; also

corrosive sublimate 1 to 1,000 may be applied daily on tampons to nose. Potas. permang. 1 to 700 in like manner. Diachylon ointment where crust is very hard and firm. Lactic acid in solution or pure has entirely failed. Where other treatment irritates local application of ℞. Resorcini, balsami Peruviani, mucilaginis acaciæ aa. is frequently beneficial. Daily cleansing and treatment are considered very important.

For lupus of larynx a local application of menthol oil at clinic and menthol inhalation at home has been found most beneficial. Under the more active measures they are apt to become worse.



Eye Changes in Relation to Renal Disease.—Edward Nettleship.—*Brit. Med. Jour.*

Albuminuric retinitis commonly occurs in chronic interstitial and parenchymatous nephritis. A few cases are on record where it is associated with lardaceous disease, and with nephritis due to inflammation of the bladder, ureter, or pelvis of the kidney; additional cases in connection with any of these cases are worthy of careful record. Of 22 cases of pregnancy retinitis 41 per cent. are known to have lived two years or more after the retinitis; of 41 cases of renal retinitis not due to pregnancy only 22 per cent. lived for more than two years. The majority of cases of pregnancy retinitis do not occur until after the first pregnancy; when it occurs in a primipara there may be no recurrence of renal or eye symptoms in subsequent pregnancies.

Omitting Pregnancy Cases.—My cases seem to show that the prospect of life is better when renal retinitis (*not from pregnancy*) occurs after the age of 55.

An early stage of granular kidney may fairly be suspected whenever the ophthalmoscope shows decided hyaline thickening of the retinal arteries; this suspicion will be much strengthened if the patient be comparatively young. This thickening may be conspicuous in one eye and absent or insignificant in the other; even the arteries in the affected eye are by no means always equally changed in all parts of their course. The thickening of retinal arteries, specially described by Gunn and others, should be considered a sign of danger of cerebral hæmorrhage in elderly people. It is unnatural to draw a sharp distinction between "exudative, inflammatory, and degenerative" cases of retinitis, or to associate either form with any particular kind of chronic nephritis. I feel clear in my own mind that there is only one sort of renal retinitis; the many varieties seen in life are only stages or degrees of oedema, exudation or degeneration. Glycosuria, as well as other constitutional or local conditions, may produce retinal changes similar in

appearance to those of renal origin. I consider the life prospect better in diabetic than in renal cases. Most of the cases of choroiditis described as renal are secondary, in my opinion, to retinitis.

Discussion.

GEORGE CARPENTER, M. D., for many years has made routine examinations of the fundus oculi in cases of nephritis in children, and has seen three cases—two, in chronic interstitial nephritis, were verified post mortem; the third, a girl, aet. 8 years, with parenchymatous nephritis, had intense neuro-retinitis with oedema and degenerative changes; there was no evidence of syphilis. Retinitis is not uncommon in interstitial nephritis of children; interstitial nephritis without eye complications is uncommon.

QUARRY SILCOCK has not seen neuro-retinal changes in surgical kidney except in cases of associated cardio-vascular changes of chronic nephritis. Even in prolonged calculous anuria he had never seen retinal changes.

R. A. REEVE, M. D., Toronto, reported a healthy man in middle life with slight hæmorrhages and choroidal changes due to high myopia. Several experts were in error as well as himself, who was led to believe that renal disease had been negatived. Later, albumin with casts had been found, and the ocular changes were doubtless associated with the kidney disease.

HENRY POWER related the case of a clergyman, aged about 30, whose health had suddenly failed and his vision became impaired. On examination retinal hæmorrhages were found with white spots radiating round the macula. The case was believed to be one of albuminuric retinitis, but an examination of the urine by a physician of high repute showed the entire absence of albumin. Three weeks later, the vision becoming worse and the retinal changes more marked, he was again seen by the same physician, who then found the urine contained abundant albumin. The patient died a few months later.

Retinal Extract for Atrophic Retinæ.—ROBERT W. DOYNE, Oxford —*Brit. Med. Jour.*

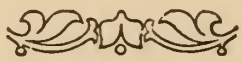
He thinks the retina contains some active physiological principle, as does the thyroid gland; is emphatic that the retinæ must be fresh. The dose by mouth he uses is equivalent to six to ten retinæ a day. It seems to bring out any potentiality that may remain in the atrophied retina, even when ordinary light fails to excite function. He has obtained real, distinct improvement in five cases of retinitis pigmentosa; too intense daylight counteracts the effects. Four cases of tobacco amblyopia were more improved

in three weeks than is usual with other treatment. He also reported two cases of optic nerve atrophy improved. Excellent results have also been obtained in cases of old choroiditis, and in damaged and thin retinæ of high myopia.

In 1897 Louis Dor employed an extract of the ciliary body; in 1898 Lagrange used an extract of vitreous and ciliary body combined. Choroid, retina, vitreous and ciliary body have also been extracted together and used; but never the retina alone, like this.

Dr. Darier (Paris) reported having used subconjunctively an extract of ciliary body, choroid and retina with encouraging results in the apparent stimulation of the visual purple.

Sidney Stephenson reported treating three cases of tobacco amblyopia with Mr. Doyne's "optocine," getting marked improvement despite continued use of tobacco.



Operative Treatment of Stenosis of the Larynx Following Intubation and Tracheotomy. Report and Exhibition of Cases—A. B. Duel, M. D.—*N. Y. Med. Jour.*

Dr. John Rogers, of New York, in an exhaustive paper on the subject in the *Annals of Surgery,* for May, 1900, in which he reviews the cases of O'Dwyer, Ranke, Boulay, Gallatti, Baer, Kohl, Northrup, and Brown, together with several of his own, concludes that the impression which has so largely prevailed, that this persistent retention is due to a faulty intubation, granulations, or cicatricial contractions, is largely erroneous; that such conditions are exceptions, and that the true cause, in nearly every case, is hypertrophy of the subglottic tissues, accompanied by a chronic inflammation; that in cases in which tracheotomy has been performed subsequently on account of repeated auto-extubations, cicatricial bands are almost certain to form above the tracheotomy wound; that these bands, however, should not be considered the primary cause of the laryngeal stenosis. The histories of the cases reported by Dr. Rogers bear out these conclusions very forcibly.

Reports of three interesting cases follow, two consequent upon diphtheria and one from smallpox. Dilatation by graduated intubation tubes tried in each; but in each thyreotomy with careful dissection of cicatricial contraction followed by wearing special tube was necessary.

The points brought out by these cases only emphasize those made by Dr. Rogers in his excellent paper. The important points to remember in the work are:

(1) About one per cent. of all patients intubated for acute laryngeal stenosis will "retain" the tube.

(2) The cause of the retention is due, in the majority of cases, to

chronic inflammation of the intra-laryngeal mucous membrane and hypertrophy of the subglottic tissues, and is not as has been generally supposed, the result of granulation, ulceration, or cicatricial bands.

(3) Autoextubation in these cases is the rule, and adds greatly to the danger where an experienced intubator is not at hand. As a result of this a large number of such cases are tracheotomized for safety.

(4) Where high tracheotomies are done, cicatricial bands are almost certain to form in the trachea or lower part of the larynx above the tracheotomy wounds.

The points in treatment which should be emphasized are:

(*a*) The largest sized tube possible should be inserted, under an anæsthetic. In case of contraction, rapid dilatation should be done by beginning with the small sizes and working up to the large special tube, which is to be left in place. This special tube should be as large as can be inserted, and the constriction below the neck only 1-32 of an inch smaller than the retaining swell.

(*b*) This tube should be left in, undisturbed, for six weeks at least. It should then be removed, and, if a cure has not been accomplished, it should be replaced for six weeks longer.

Lumbar Puncture in the Endocranial Complications of Otitis.*— Drs. Chavasse and Mahu.—*Revue Hebdomadaire de Laryngologie, d'Otologie et de Rhinologie,* October 24, 1903.

Drs. Chavasse and Mahu had a lengthy resumé of an exhaustive report on lumbar puncture in ear diseases with intracranial complications. The original report was presented to the *Societé Francaise d'Otologie, de Laryngologie, et de Rhinologie* at the meeting of October, 1903. The authors sum up the results of their investigations as follows:

1.—Lumbar puncture, as a method of examining the cephalo-rachidian fluid for color, bacteriology and cytology, is a remarkable means of diagnosis of endocranial complications of the ears. Done without aspiration and with the patient lying down it is nearly always harmless.

2.—The positive results are not as valuable as the negative in following the progress of the disease and in showing the precise condition at the time puncture is made. The influence of certain general diseases on the character of the cephalo-rachidian fluid must not be lost sight of.

3.—In the great majority of cases, if the liquid, after centrifugation, contains either bacteria or polynuclear leucocytes, or the two combined, it indicates the existence of a bacterial meningitis.

A clear or slightly cloudy liquid containing lymphocytes in abundance

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*Translated and abridged by Walter Sands Mills, M. D., New York.

indicates, in general, a tuberculous meningitis; and if the bacillus of Koch is found, tuberculous meningitis is positive. The lymphocytosis is found also in other chronic meningeal processes, in the subsidence of an acute meningitis, and particularly of a cerebro-spinal meningitis.

4.—In extra-dural, or intra-dural suppuration, the cephalo-rachidian fluid keeps its normal composition so long as the arachnoid is free from irritation.

5.—Lumbar puncture in circumscribed meningitis is not done at present, as the indications for diagnosis are not precise enough.

6.—In cephalic abscess, in thrombosis of the lateral sinus and in non-bacterial serous meningitis the liquid is clear and normal, frequently increased in quantity and under increased pressure, especially in the last condition.

7.—The liquid keeps its normal composition in the labyrinth and meninges.

8.—After traumatism of the labyrinth or of the base of the brain with symptoms near the ear, the presence of red corpuscles in the cephalo-rachidian fluid is observed.

9.—Withdrawal and examination of the liquid should never stop surgical intervention; on the contrary, it makes it more precise and, consequently, more efficacious.

10.—At present the therapeutic value of lumbar puncture is evidently doubtful. Meanwhile, on account of some results obtained in general medicine and in some cases of otitic meningitis, one is justified in combining it with surgical intervention should the situation not be clinically desperate.

11.—Lumbar puncture has shown the curability of certain meningeal inflammations.

12.—Examination of the cephalo-rachidian fluid, in the present state of our knowledge, especially for cyto-diagnosis, constitutes a very great advance in the diagnosis of endocranial complications of otitis, and we think we are not wrong in generally employing it.

Atrophic Rhinitis. W. Freudenthal, New York.—*Ann. of Ot., Rhin. and Lar.*

Ozena is an atrophy of the nasal interior, which is conditioned by atmospheric influences—Xerasia. The bones of the turbinated bodies appear to be affected at an early period of the disease. The effects of lack of humidity in the air are apparent in all parts: (*a*) Of the nasal interior, including diseases which were formerly looked upon from a different point of view, as, for example, ulcus septi nasi perforans, rhinitis atrophica anterior, some forms of epistaxis, etc.; (*b*) Neighboring parts of the body [scalp, ears, lips, teeth]; (*c*) Probably also in distant organs.

In order to convert this atrophy into ozena the plentiful invasion of a bacillus, similar to Friedlaender's pneumo-bacilli, is necessary. This invasion occurs in an early period of life and is caused, perhaps in some cases, by direct transmission from the vulva. Accessory sinus disease often appears as secondary to ozena.

Ozena, after all has been said, is to be considered a genuine and autochthonous disease, resulting from atrophy of the nasal interior.

SOCIETIES

British Medical Association. Section of Laryngology and Otology.

Seventy-first Annual Meeting, Swansea, July 28-31, 1903. Patrick Watson Williams, M. D., Chairman.

A Discussion on the Operative Treatment of Malignant Diseases of the Larynx. **First Paper.** Sir Felix Semon, C. V. O., M. D., F. R. C. P.

The larynx was considered necessary for life until Prof. Czerny, then assistant of Prof. Billroth, totally extirpated the larynges of dogs in 1870. Prof. Billroth first performed total or partial laryngectomy on a human being. The early operations, i. e., up to about 1888, were quite unsuccessful, as in '88 the statistics of Schwartz, Scheier and Baratoux show only 8 to 13 per cent. cures from total extirpation of larynx. For this there were two causes: (first) mode of diagnosis was so imperfect that the malignant growth was not usually recognized until too late to be thoroughly removed; and (second) the technique of the operations upon the larynx was so crude that pulmonary complications almost inevitably followed.

The English laryngologists prefer thyrotomy, the Germans the conservative procedure, intra-laryngeal operations, while the American operator usually advocates the total extirpation and "all its tributary lymphatic glands."

It is very important to "distinguish between intrinsic and extrinsic malignant disease of the larynx, the former comprising the true interior of the larynx from the ventricular band downward, the latter the tumors situated on the ary-epiglottic folds, the arytenoid cartilages, epiglottis and posterior wall of the cricoid cartilage," because the intrinsic "remain much longer a purely local affection," whilst the extrinsic early infect the surrounding lymphatics.

There are five different operative methods.

1st. *Intralaryngeal.* The Author believes—because the entire infected

tissue must be extirpated, also because when removing cancers per external methods is found that they were more extensive than they had appeared on immediately previous laryngological examination—that this method, "with some extremely rare exceptions, is absolutely unsuitable."

2d. *Thyrotomy.* Author has performed 20 operations with 19 recoveries—one death from operation and two doubtful recurrences. His rules are: "(1) The operation must be restricted to early stages of intrinsic malignant disease; (2) For this purpose an early diagnosis is indispensable; (3) The operation when performed must be thorough—that is, no sentimental considerations concerning the amount of vocal power to be retained by the patient must interfere with the imperative necessity of removing a sufficient area of healthy tissue around the new growth in all directions. A violation of this rule in one single part of the periphery of the new growth may frustrate the entire purpose of the operation. (4) Should it be found after opening the larynx that the disease is more advanced than it appeared on laryngoscopic examination, it is the duty of the operator not to limit his interference to the operation originally contemplated, but to perform partial laryngectomy, or indeed any other operation, the necessity of which may become apparent when the extent and depth of infiltration of the new growth has been definitely ascertained."

The author continues to perform the operation as he described it in the London *Lancet* in 1894, with this improvement: "Where the growth is situated in the anterior commissure, and in which it is necessary to remove the anterior parts of one or both vocal cords, I have recently repeatedly stitched the posterior ends to the ventricular bands, with the result of obtaining much better vocalization."

3d. *Partial Extirpation of the Larynx.* By this is meant "an operation in which no less than one entire wing of the thyroid cartilage, and possibly additionally an arytenoid and parts of the cricoid cartilage are removed," but does not include those in which but small portions of the cartilages are removed. It is of greater necessity to keep the wound open for some time after the operation to avoid cicatricial contraction.

4th. *Total Extirpation of the Larynx.* "Only if the new growth should be found to have actually invaded the cartilages will this be called for." He wishes again to correct a general misunderstanding as to his opinion and say that he is not as often reported an "avowed opponent of total laryngectomy," but believes and hopes, as methods of diagnosis improve, that fewer cases will progress to the size necessitating this last procedure.

5th. *Sub-hyroid Pharyngotomy* is suitable where disease is principally located in the epiglottis or aryteno-epiglottidean fold. Curiously most cases have been fatal.

6th. *Palliative Tracheotomy* should only be resorted to when the disease has progressed so far that it cannot be removed by one of the foregoing procedures; and should be made as low as possible in order to avoid that the disease extend into the tracheotomy wound before the end of life.

In some cases the conditions are so obscure that diagnosis is impossible until the larynx is opened, therefore exploratory thyrotomy is not only admissible but necessary. The rôle of microscopic examination "is that of a helpmate but not of an infallible arbiter, and the clinical observer must have the courage of his opinions and perform an exploratory thyrotomy in suspicious cases even when the microscope has pronounced it benign." In closing a case is reported in which even after thyrotomy, removal of a growth (?) considered malignant, then in six months a recurrence of a similar growth in edge of original scar—this recurrent growth was considered by six laryngologists from the clinical symptoms to be malignant, and advised operation, but patient refused further operation, and eight months after last consultation is in as good health as before operation. The original tumor was pronounced benign by microscopist. Under the circumstances the writer is still uncertain as to character of the disease.

Second Paper. THEMISTOKLES GLUCK, M. D. (Prof. Surg. Univ. of Berlin.)

Comprises a quite exact description of thyrotomy, partial and total laryngectomy, including some individual improvements in technique; reports of two operations and wood-cuts to illustrate. None of which lend themselves to abstracting. Including these three operations in one class, the author has performed one hundred and twenty-five in fifteen years with constantly improved technique and gradually increasing success. He stitches the trachea to the skin in the supra-sternal fossa, thereby obviating the use of a tracheotomy tube. He has also invented prosthetic appliances by which the patient is enabled to whisper after any of these operations.

Discussion. HERBERT TILLEY, M. D., F. R. C. S. Always sutured the wound immediately after operation except the lower extremity, in which opening is left a strip of iodoform gauze. Also related the following peculiar experience: A thyrotomy was performed on man, 70 years; for twenty-four hours progress was satisfactory, when pulse became rapid, the temperature 102°, and active delirium supervened. The wound and chest being perfectly normal, it seemed not improbably due to weakness, the patient not assimilating enough from the nutrient enemas given; therefore brandy and egg were administered by mouth, when these symptoms disappeared and recovery progressed naturally.

W. JOBSEN HORNE, M. D., B. C., Cantab. Thought when an error was made it was usually in considering a benign growth a malignant one, and not apt to be the reverse. Did not advise removal of specimen for microscopic examination unless the patient had previously agreed to have tumor operated upon if it proved to be a cancer.

ROBERT WOODS, M. B., F. R. C. S. I. Did not entirely approve of Whitehead's varnish as an antiseptic and styptic, as advocated by the former

speaker, because of the danger of it sealing up the submucous tissue and causing œdema.

Eugene S. Younge, M. D. Thought that the most of the unfavorable results were due to faults in technique; as these are far better understood now better results may be expected.

Dundas Grant, M. A., M. D., F. R. C. S. Believed as thyrotomy was practically devoid of danger, it was not too radical even to perform this operation before the absolute diagnosis of malignancy was made—even if the normal voice was somewhat interfered with, and the tumor found to be benign, this drawback was compensated for by the assurance of the innocence of the growth. The motto in all operations for this disease should be "thorough."

The dread of utter voicelessness from total extirpation was to a certain degree dispelled because the pharyngeal voice, as produced by the devices described by Dr. Gluck, was not a negligible quantity. A case of sarcoma, in which he had excised the whole larynx along with the thyroid gland, the patient was able to speak in a loud whisper. Speaker also "thought that cases in which, before operation, there was a tendency to regurgitation of fluids into the larynx, were less favorable in their prognosis than those in which this did not exist, as there was ever probability of schlunk pneumonia."

P. Watson Williams, M. D., drew notice to the difference of opinion—not many years ago the diagnosis of cancer was almost equivalent to death, while Dr. Semon's records showed 85 per cent. of cures in properly selected cases by thyrotomy and Dr. Gluck had cured a large number by more extensive operations.

Sir Felix Semon. Replied. The critical period was just three days after operation. A temperature of 102° or more indicated "septic complication, probably pneumonia or bronchitis." He propounded the following questions: "(1) Why do by far the most cases of cancer of the larynx occur in men? (2) Why is it that when women do suffer from this disease it is almost always the 'extrinsic' form that affects them?"

In suturing the larynx introduce stitches through perichondrium only, not into laryngeal cavity, as troublesome granulations are apt to form which cause observer anxiety because they appear very like recurrence of previous growth. After Dr. Wood's experience of having Whitehead's varnish cause œdema, he would hesitate to use it. Cocain he found very useful; but would not use adrenelin, "fearing from his experience in the nose that it increased the liability to secondary hæmorrhage."

Two Cases of Epithelioma of the Larynx Remaining Well Two Years After Operation (*Thyrotomy*). Eugene S. Young, M. D., Edin.

The clinical and pathological evidences of malignancy in these cases were pronounced.

Case I.—Male, 57 years. Complained of aphonia for one year; the left cord only partially mobile, and converted into a papillary fringe; no enlarged cervical glands nor constitutional symptoms. Microscopic examination showed it to be a squamous epithelioma. In July, 1901, tracheotomy followed by thyrotomy was performed. Owing to the formation of a fibrous band in region of left vocal cord he gradually developed a fairly strong and clear voice, evidenced by the patient making a speech in a large public hall and was well heard.

Case II.—Male, aged 67. Was hoarse for one and a half years, resisting all treatment. Examination demonstrated a sessile wart-like growth on the right cord and ventricular band, cord almost fixed; also congestion of anterior part of left cord. In August, 1901, tracheotomy and thyrotomy were performed. At present (July, '03) patient dictates to stenographer two or three hours per diem without inconvenience.

A persistent dry hoarseness in a person of 50 years or older is frequently the only symptom. Where the clinical symptoms are sufficiently distinct, the writer thinks operation justifiable if the microscopical examination is practical or indicates benign growth.

A Discussion on the Technique of Operations on the Temporal Bone in Suppurative Middle Ear Disease.

First Paper. P. McBride, M. D., F. R. C. P. E., F. R. S. E. After giving a concise history of these operations from their first suggestion by Riolanus about 1650 for deafness, he says of the original Schwartze operation, that although the concensus of opinion at present is that it is applicable to acute and subacute cases only, still in Schwartze's clinic it is performed for chronic cases. Macewen operates with a burr; to enter the tympanic cavity he uses a small burr, placing against the "junction of the roof with the outer wall of the antral passage." Neither the floor nor inner wall can be encroached upon because of injuring the facial nerve or semicircular canals. Clarence Blake modifies the simple operation by allowing "the wound to fill with blood and heal." In Bezold's form of suppuration, after cleaning out the mastoid cells the breach in the inner and lower wall is found by a probe; clear the carious bone from around this, then pass a bent probe provided with an eye through this to bottom of abscess cavity in the soft tissues of the neck; bring the probe point up under skin either in front or behind the sterno-mastoid muscle, cut down upon it, and then attaching drainage tube to probe, draw it through the wound. Malherbe opens "into the middle ear by way of the mastoid in order to sever adhesions in chronic non-suppurative middle ear catarrh."

The Radical Operation. The first suggestion of opening the mastoid by way of the meatus was by Wolf in 1877. Küster of Berlin in '89 brought

it to the notice of the profession. "Zaufel may be said to have first initiated the modern radical operation," but it was Stacke's success with and publication of this technique of a similar operation which popularized it. Panse's, Korner's and Siebenmann's modifications of Stacke's are mentioned. Siebenmann first advocated permanent post auricular opening in cases of cholesteatoma in 1893; while in 1900 Trautmann advocated this permanent opening in all mastoid operations and the closure of the same by a second plastic operation. The following methods for the plastic operation are briefly mentioned: Mosetig-Moorhof's, Passow's, Trautmann's, Lermoyez's and Frey's, and finally Ballance's method of grafting and closing the wound the author thinks a distinct advance because it greatly hastens epidermization.

Intra-cranial Suppurations. Although there is an increasing tendency to expose both dura and lateral sinus, the author takes every precaution to avoid the same unless definite indications exist or it is required to remove all carious bone. Only a drop or two of fetid pus around the lateral sinus may be the cause of a very high temperature. The first successfully operated intra-cranial abscess was done by Morand in 1768. Korner is usually accredited being the first to have called attention to the fact that intra-cranial abscesses are usually in contact with diseased bone in the immediate region of the tegmen in 1889; but the author quotes passage in which he made the same statement before the British Medical Association two years previously.

The absence of pulsation of the lateral sinus as a diagnostic sign of thrombosis the author considers of doubtful value. Puncture with sterilized needle may possibly be justifiable, but it must be remembered that the sinus is in immediate contact with a septic ear in most cases. To ascertain if the jugular bulb is thrombosed, Whiting (N. Y. C.) suggests "compressing the vessel as near the bulb as possible, he draws his finger upwards so as to empty it; the compression is then removed; if blood enters from below he assumes that it is not thrombosed." To operate on the jugular bulb Grunert "begins by opening the mastoid, exposing the sinus, and then ligating the jugular. He then unites the retro-auricular and cervical incisions, resects the tip of the mastoid, pulls forward the soft parts, and loosens them to the jugular foramen; finally he removes sufficient bone to expose the bulb." Piffl's method for the same is also given.

Then follow reports of eight cases illustrative of some peculiar or interesting circumstance. In regard to Case III. in which a man of 30 years had had pain in and discharge from ear for three weeks, temperature of 101 and pulse about 80, and his appearance was dull and stupid—the speaker said "the general evidence of illness associated with relief of pain and without external swelling is, in my experience, often an indication that pus has penetrated the cranial cavity." (*To be continued.*)

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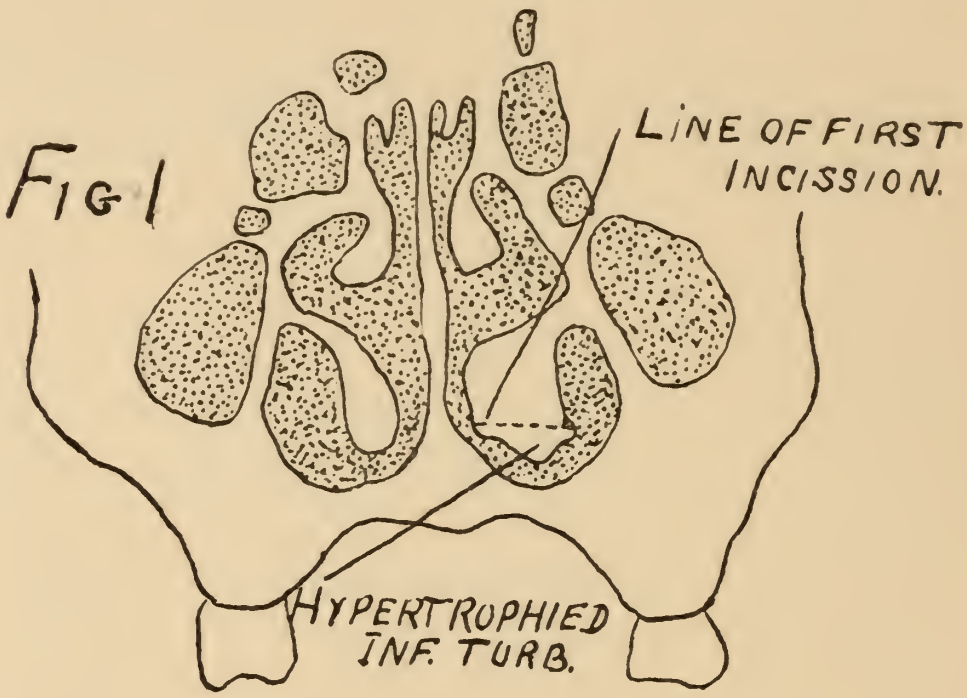
A NEW OPERATION FOR THE REDUCTION OF CERTAIN INFERIOR TURBINAL HYPERTROPHIES

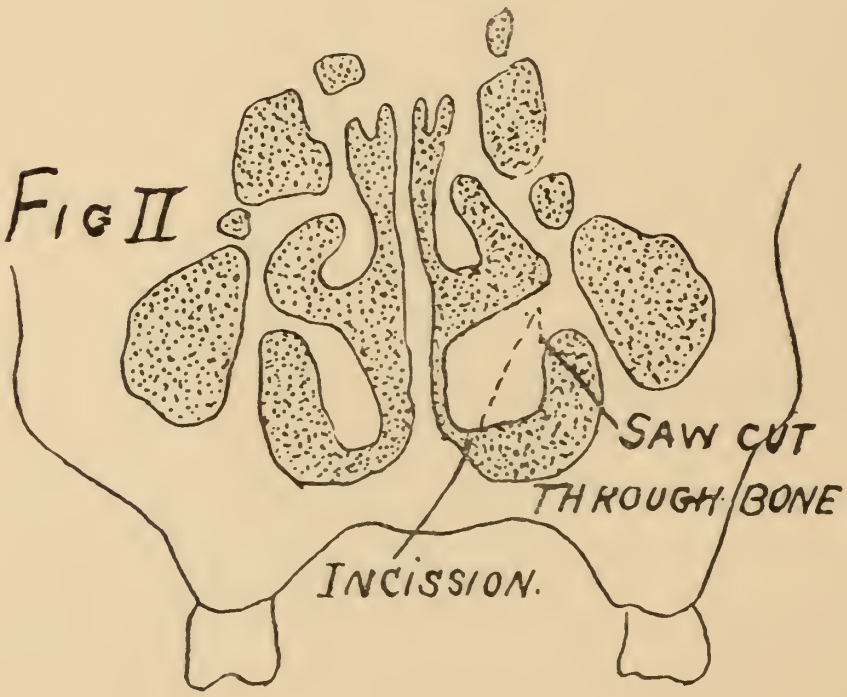
Geo. B. Rice, M.D.
Boston.

We are more and more recognizing the fact that intra-nasal operations causing much loss of functionating mucous membrane are to be deplored. The application of the cautery to a sufficient extent to cause reduction of hypertrophied tissue has been practically abandoned by all conservative specialists. Trephining through the hypertrophy and removing a small cone of tissue is applicable to some cases, as is also electrolysis. When the hypertrophy dips, obstructing the floor of the nose and interfering with respiration and drainage, there is then only one proper procedure; namely, to remove enough of the inferior edge to restore the inferior meatus to its normal condition. But when the whole turbinal becomes so much hypertrophied as to cause not only obstruction of the inferior meatus, but contact and pressure against the septum, the last named operation is not sufficient to give the needed relief. In a case of this character the following operation was performed:

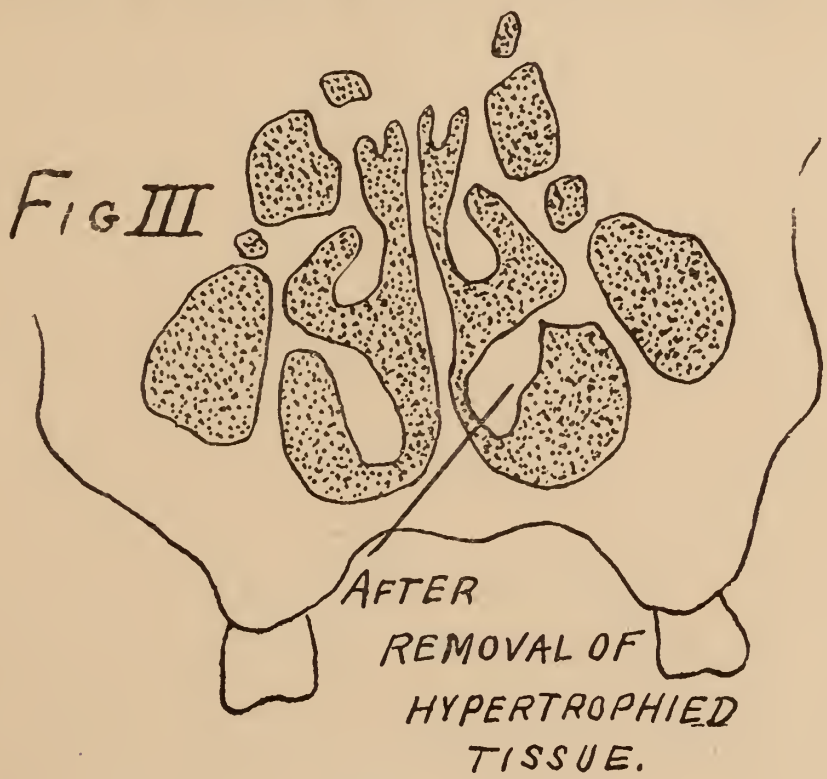
Figure 1 represents such an hypertrophy of the inferior turbinated body of the left side. The whole structure was unyielding and retracted but little under the influence of cocain and

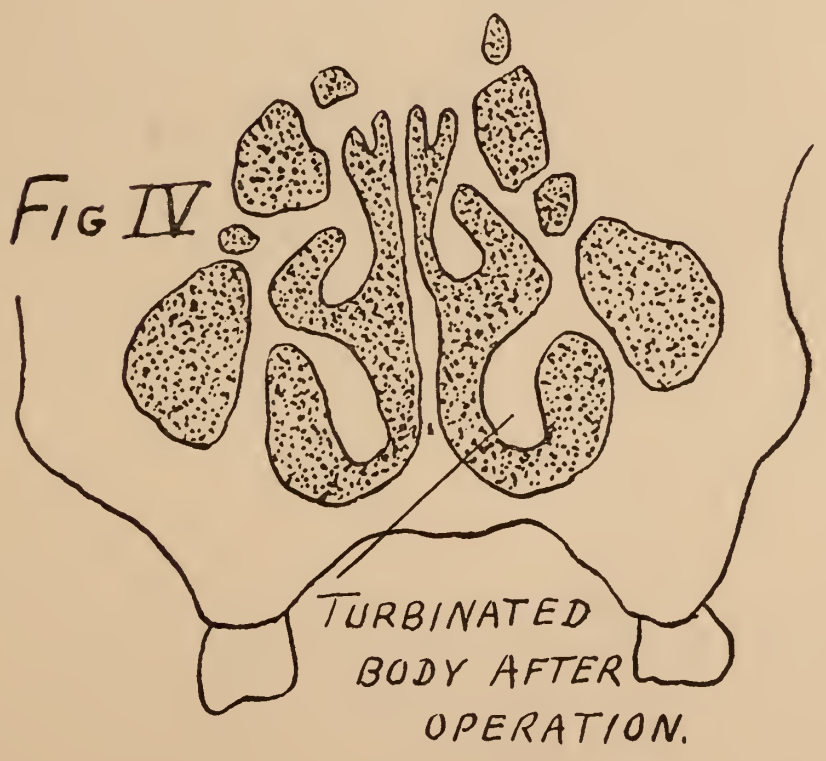
adrenalin. After the tissue had been thoroughly anæsthetized the inferior border was removed along the whole length by means of the scissors. This section did not include any bone. The turbinal now appeared as in Fig. 2. A saw was introduced near to





the outer wall of the nose and the bone was cut nearly through, leaving the soft tissues above intact. Next an upward incision was made with a saw knife, beginning a little on the septal side of the saw cut, but meeting it above. This triangular cone was





removed, not including any of the bone, and the turbinated body appeared as in Fig. 3.

The turbinated body was now grasped with a pair of long forceps and the whole structure broken down. Strips of gauze were then introduced for drainage beneath the structure and another packing between it and the septum. This dressing was removed at the end of forty-eight hours and the nose thereafter kept clean by means of daily irrigation with a warm Dobell's solution. The tissues healed promptly and the result was all that could be desired in every way.

Figure 4 represents the completed operation.

ACUTE GLAUCOMA

B. M. Behrens, M.D., Minneapolis.

A woman about 30 years of age, complains of violent darting pains in the left eye. No family history. Never had any trouble with her eyes. Vision dimmed. Pupil somewhat dilated. Increased tension of the eyeball. No atropin applied before inspection of the eye ground, which is congested, compared to those of the other eye, and the retinal vessels conspicuously enlarged. In the left nostril the middle turbinal is enlarged and exceedingly tender. A good-sized piece of this was snipped off and from that moment the pain subsided, vision became normal and the pupillary reaction to light was restored.

ON THE USE OF FORMALIN IN THE CURE OF CHRONIC PURULENT OTITIS MEDIA.

Gaetano Geronzi, Rome.

Translated by Virgil C. Piatti, M.D.

Among the many remedies recommended for the cure of chronic purulent otitis media we have yet to find one that is ideal. It is very true that the difficulties of a cure in the larger number of cases are due not so much to the morbid process, per se, as to local anotomical conditions which obstruct the free flow of the secretions and prevent proper local medication. The ideal remedy should have not only the virtue of destroying the various morbid agents, but should also possess a diffusive action, insinuating itself in all the recesses of the middle ear and to excite in the sound tissues an action whereby they might throw off all morbid proliferations which have been produced by the chronic suppurative action; said virtues *a priori* we hope to find united in formalin. This same idea, in fact, was first looked into by Prillat in 1888, since which time its antiseptic action has been studied by many and its value universally established.

Comparing here with sublimate, formalin has in addition an anti-fermentative action, as has been shown by Mosso. Formalin, according to many, also has the power of penetrating into the profundity of tissues, for which reason Landerer and Kramer, as a result of bacteriological investigations, have recommended it for the sterilization of the cutis. It is true, however, that there are many experiments and opinions which are negative as regards this action on the cutis.

Formalin has an evident indurative and mummifying action on tumors of neoformation and fungosities; owing to such action

it has proved valuable in provoking the separation and elimination of the said growths.

On wounds it undoubtedly promotes cicatrization. Of these last two actions of the drug I have been personally convinced in my clinic having cured an immense infiltration and ulceration of the ear in a female 40 years of age which clinically presented all the characters of an epithelioma and also cured old multiple torpid ulceration of the leg of a little girl who had been coming to the clinic for months. It was for these reasons that, with the permission of my superior in clinic, Prof. De Rossi, that I began to experiment with formalin in the cure of chronic otitis media, although the same had been used before in Auricular therapeutics. Sime y Morlist used it in solutions of 10—1000 and 5—1000; 20+1000 proving too irritative. The technique adopted by him was as follows: Irrigation of the ear with a solution of 5—1000 followed by packing with gauze saturated in a solution of 10—1000. On the second day there was a marked decrease in the odor, and after a few days the suppuration ceased. Old otorhœas were thus cured in about 15 days.

Nathan G. Word has adopted a solution of 5 drops in 30 grammes of water instilling it in the ear for ten minutes, and in 40 cases accomplished a cure in 35 in a time varying from 3 to 15 days, the average being one week. In the more obstinate cases and in those with small granulations he adds a small quantity of alcohol to the water. His conclusions are as follows: That it is not necessary to use a strong solution of formalin, and that in general those solutions that cause an immediate sensation of burning give the best results, causing a rapid disappearance of the fœtid odor, the suppuration to cease, destroying existing granulations, and preventing the formation of new granulations. which I report herewith, and for brevity have tabulated the more important data.

AGE	DURATION	DIAGNOSIS	Bad Odor to Secretion	Amelioration	CURE	REMARKS
16	3 months	O. M. P. Cr. Large perforation of membrana t. eczema of canal.	No	3d Med.	5th Med.	Eczema also quickly modified.
9	8 years	O. M. P. Cr. Membrane missing; granulations in lower and upper portion.	Yes	5th Med.	15th Med.	Tolerated only 2 per cent. solution.
9	8 years	O. M. P. Cr. Membrane destroyed. Mucosa of promontory granulous.	Yes	2d Med.	8th Med.	
15	7 years	O. M. P. Cr. Destruction of membrane; also Schanpriell's membrane. Remainder of handle dislocated backward and above.	Yes	.....	.....	2 per cent. solution used, badly tolerated. There were 3 periods of amelioration, but not cured.
24	7 months	O. M. P. Cr. Large perforation of posterior segment.	Yes	2d Med.	5th Med.	At the 9th medication suppuration continues.
3	2 years	O. M. P. Cr. Granulations of tympanum, which were quickly reproduced after removal with Lange's forceps.	Yes	2	5	
3	2 years	O. M. P. Cr. Granulations of tympanum.	Yes	4	6	Return of trouble after 10 days.
17	6 years	O. M. P. Cr. Destruction of membrane. Mucosa hypertrophied and granular.	No	3	5	
18	6 years	O. M. P. Cr. Large perforation of post. segment.	Yes	5	.....	Did not return to clinic.
15	4 years	O. M. P. Cr. Large perforation of ant. segment.	No	2	6	
18	1 year	O. M. P. Cr. Large perforation.	Yes	2	14	
7	6 years	O. M. P. Cr. Small perforation lower portion.	Yes	3	.....	At first an then an and no cure.
25	1 year	O. M. P. Cr. Destruction of membrane. Granulations of tympanum.	Yes	4	.....	After 12th medication not cured.
5	18 years	O. M. P. Cr. Perforation in upper posterior segment.	Yes	5	.....	Amelioration marked, but not cured.
19	18 years	O. M. P. Cr. Large perforation. Handle of malleus retracted above and posteriorly.	Yes	5	12	After 5 days suppuration returned.
1	2 months	O. M. P. Cr. Perforation. Eczema of canal. Granulations springing from the attic.	Yes	3	.....	from beginning, but cure was not completed up to the 20th medication.
40	1 year	O. M. P. Cr. Large perforation anteriorly.	No	3	4	
12	3 years	O. M. P. Cr. Large perforation of membrane.	Yes	3	15	
22	20 years	Id. Id.	Yes	3	7	
18	6 years	O. M. P. Cr. Large perforation ant. segment.	Yes	3	5	
34	25 years	O. M. P. Cr. Much destruction of membrane.	Yes	3	10	Suppuration after 9 days.
34	21 years	O. M. P. Cr. Granulations of tympanum.	Yes	4	13	
19	18 years	O. M. P. Cr. Perforation central.	Yes	2	6	
2	2 years	O. M. P. Cr. Large perforation ant. segment.	Yes	.....	8 days.	Instillations used.
41	2 months	O. M. P. Cr. Perforation ant. segment.	No	2	20	After 2d medication instillations prescribed.
17	12 years	O. M. P. Cr. Destruction of membrane.	No	.....	3	
25	12 years	O. M. P. Cr. Perforation central.	Yes	3	7	
9	5 years	O. M. P. Cr. Vegetations in tympanum—mallectomy performed some time previous.	Yes	3	12	Suppuration returned after 5 days.

As a result of the above researches, showing that formalin in weak solution had a conspicuous antiseptic action, I decided to experiment with stronger solutions, hoping to get more positive and rapid results, and to profit by the mummifying action of the drug on diseased tissues.

Bearing in mind the irritating action of formalin on mucous membranes and wounds, I decided to use glycerine as an excipient rather than water or alcohol, hoping thus to minimize its irritating and caustic effects, such as happens with acidi carbolici. In fact, I had noticed that a 10 per cent. solution of carbolic acid in glycerine was well tolerated, whereas in this strength in water was intolerable; it invariably caused eschars.

Walther and Schlosman found that the glycerine intensified the action of the formalin, thereby permitting of the use of a minimum amount of the drug, and in all cases the glycerine acts very energetically as an antiputrid and antifermentative, owing to its very pronounced hydroscopic action.

I determined the maximum dose tolerated, and ascertained that ordinarily 5 per cent. solution is well tolerated, 10 per cent. solution sometimes, and 2 per cent. or 3 per cent. are always tolerated.

I selected for my experiments those cases that had been for some time at the clinic and on whom the ordinary drugs habitually used had been applied.

The technique was as follows: Cleansing of the canal, etc., with sterilized cotton, followed by the insertion of gauze soaked in a 2 per cent. solution, then successively in 5 per cent. and, if tolerated, in 7 per cent., and rarely in 10 per cent.

In only a few cases I instilled a few drops of a 5 per cent. solution, allowing the patient to instill the same.

During the year 1900-1901 I treated 55 cases by this method,

AGE	DURATION	DIAGNOSIS	Bad Odor to Secretion	Amelioration	CURE	REMARKS
12	4 years	O. M. P. Cr. Perforation of anterior segment.	No	.....	5	
9	6 months	O. M. P. Cr. Large perforation anterior segment. Granulations of tympanum.	Yes	4	14	
18	1 month	O. M. P. Cr. Mallectomy performed some time ago.	No	2	3	Suppuration after 9 days.
20	2 years	O. M. P. Cr. Large perforation ant. and mucosa granular.	Yes	.....	20 days.	Instillations in tympanum.
12	5 years	O. M. P. Cr. Membrana and malleus gone. Granulations springing from attic.	Yes	3	8	Granulations were cauterized with No. 3 Arg.
15	10 years	O. M. P. Cr. Perforation of posterior segment.	Yes	3	.....	Did not return for treatment.
18	1 year	O. M. P. Cr. Granulations of tympanum.	Yes	3	.....	Suppuration still continued at 20th medication.
18	13 years	O. M. P. Cr. Large perforation of inferior segment. Small vegetations in tympanum.	Yes	3	8	
13	1 year	O. M. P. Cr. Perforation central.	Yes	2	10	
17	3 years	O. M. P. Cr. Much destruction of membrane.	Yes	8	.....	Not yet cured after 20th medication.
24	20 years	O. M. P. Cr. Much destruction of anterior segment.	Yes	3	16	
12	5 months	O. M. P. Cr. Perforation of anterior segment.	No	2	5	
5	2 years	O. M. P. Cr. Perforation central.	Yes	3	9	
32	14 years	O. M. P. Cr. Much destruction of membrane.	Yes	2	11	
14	3 years	O. M. P. Cr. Perforation of anterior segment.	No	1	5	
50	40 years	O. M. P. Cr. Large perforation of membrane. Lesion of attic.	Yes	5	.....	No amelioration after 18th medication.
8	6 months	O. M. P. Cr. Perforation of anterior segment.	No	2	7	
7	3 years	O. M. P. Cr. Large central perforation.	Yes	3	7	
10	5 years	O. M. P. Cr. Small granulations of tympanum.	Yes	2	15	
20	16 years	O. M. P. Cr. Much destruction of membrane. Granulations springing from attic.	Yes	3	20	No amelioration after 15th medication.
9	7 years	O. M. P. Cr. Small perforation posterior.	Yes	9	.....	Suppuration still abundant after 25th medication.
26	20 years	O. M. P. Cr. Lesion of attic.	Yes	10	.....	
13	10 years	O. M. P. Cr. Large perforation of membrane. Probable caries of ossicles.	Yes	5	.....	Suppuration still abundant after 15th medication.
15	14 years	O. M. P. Cr. Large perforation of post-inferior segment.	Yes	3	15	But after 6 days suppuration returned.
16	15 years	O. M. P. Cr. Granulations of tympanum.	Yes	12	.....	At 20th medication condition of mucosa much improved, but suppuration continues.
30	2 years	O. M. P. Cr. Perforation anterior.	No	2	5	
12	7 years	O. M. P. Cr. Large central perforation.	Yes	3	11	

The objective symptoms in all the patients consisted mostly of lesions of the tympanum, a granular state of the mucosa and rarely of true granulations. The duration of the disease long and tedious, and the bad odor of the discharge purulent.

Medication with formalin has demonstrated without doubt an efficacious curative action. A sensible amelioration was generally perceptible after two or three applications, the discharge decreasing and above all the purulent odor disappearing in 34 of the 55 cases, and generally from the 10th to the 15th medication.

A very manifest action of the drug is on the granulations in the tympanum in reducing them in volume and in its mummifying action. It happens sometimes when the stronger solutions have not been tolerated; the 5 per cent. solution, augmented by the use of Argentum Nit., will cause the disappearance of the granulations.

Although curatively formalin has many virtues, still it has its drawbacks.

It is not rare for it to cause a burning sensation, and even severe pain in the 7 and 10 per cent. solutions, causing one to resort to cocain. There is no doubt, however, but that the individual idiosyncrasy is an important factor in the use of the remedy.

Very often there is formed in the bottom of the canal a yellow crust which is tenaciously adherent, due in part to the escharotic action of the drug on the diseased mucosa, and in most part to the coagulation of the secretion, so much so, in fact, that the crust forms even when the secretion is very scanty.

Sometimes the 7 per cent. solution produces a superficial eschar, which, however, is rapidly cured by stopping the use of the formalin and substituting boro-glyceride. Occasionally the auditory canal becomes inflamed and swollen and the gauze is compressed; it is best in these cases to remove the gauze substituting

a small piece of cotton, which with a small forceps is carried in to the tympanum.

The ordinary strength to be recommended is 5 per cent., reserving the stronger solutions for rebellious cases.

Having in the past year read an article by Valagussa on the cure of ulcero-membranous stomatitis in babies with formalin, basing his opinion on bacteriological researches, he came to the conclusion that alkaline solutions of the drug were more potent than those slightly acid. I therefore added to the 5 per cent. solution of formalin in glycerine 5 per cent. solution of carbonate of soda. While I have not kept an exact account of my cases since beginning this treatment, still I feel certain that the results are more satisfactory, and therefore recommend that it be used with the carbonate of soda.

SYMPOSIUM.

1.—*Have you found that astigmia is apt to change? Does your observation agree with that of Bennett and Clemesha:— "Astigmia is not a fixed thing; after the presbyopic age the tendency is to pass to the horizontal position of the axis of the highest refraction, and the proportion of cases whose axes are oblique also increases, but not to the same extent"?*

2.—*Have you any observations that may help to determine whether the axis shifts or the eye passes from one astigmia to the other through emmetropia?*

L. A. W. Alleman (Brooklyn): Conclusions as to such changes can only be safely based on cases in which careful corneal measurements have been made at different times, by the same observer, with the same instrument and under similar conditions of lighting, etc. Of cases so observed I have as a rule found but slight difference in the measurements, and in those in which a marked change had taken place I have not found such changes to follow any rule or to suggest any common cause for the apparent change in curvature.

No doubt, lid pressure has been the most common cause of the variation. In one case, however, which I have reported I observed a marked increase in the astigmia, with no satisfactory explanation of its occurrence.

Edward J. Bernstein (Baltimore): I am very glad to have the opportunity to answer your query, more so because I know that it will be answered in full by others and that we shall get a clear insight into this interesting question. I very much

regret, however, that I am not in a position to throw as much light on this question as I should like and as the importance demands, because my notes are upon cards and these are not classified with that idea in view.

1.—Yes, I have found that astigmia does change both as to character and as to axis. I have notes of many cases in *young* people under the presbyopic age—in which some such change appears to have taken place. The changes appear to be from 10 to 30 degrees out of the way of the original observation.

I feel confident that my original attempts to correct the *refraction* error were as accurate as my latest ones, but one question comes up to my mind, and that is, may not, in some cases, the change in obliquity be due to the extraneous eye-muscles, whose action I for one seem to understand better than I did 8 or 10 years ago and correct more accurately.

I make this observation notwithstanding that I am convinced that changes, as above stated, in the refraction index and angle of astigmia do occur.

In answer to the second question, I believe that I have one or two cases in which the eyes passed to simple myopic astigmia through emmetropia from a hypermetropic astigmia. I am sure I can eliminate any other cause than absolute change in refractive character.

I regret that I can add no more definite data than my growing conviction of the truth of this observation.

Chas. M. Thomas (Philadelphia): I find that astigmia is by no means a fixed error; it is liable to alter both as to amount and axis. I cannot say that I have noticed particularly the change in direction of the axis as indicated in your question.

Thomas M. Stewart (Cincinnati): In answer to your question, "Have you found that astigmia is apt to change?" I will answer yes.

With regard to the observation of Bennett and Clemesha, I cannot be so specific in my statement as they have been in theirs.

I have not time now to run over my record of cases and give you any positive data regarding the matter, but I shall try to do so soon.

S. Kirkpatrick (Selma, Ala.): My observation agrees fully with that of Bennett and Clemesha in regard to astigmia, but am not yet prepared to say whether the axis shifts or the eye passes through emmetropia from one astigmia to the other, though am inclined to the latter view.

E. D. Brooks (Ann Arbor): I have found astigmia change under some conditions, as, for instance, after relieving pressure in the nose and after developing weak extrinsic muscles; also in growing children. The axis I have not found to change, as tested by both objective and subjective methods, except where a child develops myopia from a condition of hypermetropic astigmia, either simple or compound, the resultant myopia being either simple or compound astigma, the axis being, of course, at right angles to the original position.

2.—Nothing in my experience or observation would lead me to think that the axis passes through emmetropia from one astigmia to another. If the astigmia were functional rather than structural, I can conceive that such might be the case. It is in such cases that we get rid of the astigmia altogether by removing the cause, as in the instances mentioned above, in my answer to question No. 1.

Frank C. Todd, (Minneapolis): I have found that astigmia is apt to change. My conclusions are based largely upon careful records which I have kept of all my cases for the past ten years, including examinations with the ophthalmometer, and careful tests with the usual methods under a cycloplegic. These changes are usually first in the axis, the changes in the amount of actual astigmia do not so often take place, and when there is a change in the amount it is usually of slight degree, but occasionally I find cases in which there is an undoubted change of a considerable degree. These changes are sometimes in the cornea as shown by the ophthalmometer and sometimes lenticular. I have had some cases where the axis has been reversed.

My observations agree with those of Bennett and Clemesha, though I have never before read their conclusions. The same idea which they express has come to my mind as a result of my own experience. This observation, however, is not based upon a careful study of the statistics of my cases, for I have not taken the time to make such a comparison.

David W. Wells (Boston): The most marked case of change of astigmia which has occurred in my practice is the following: Male, aet seventeen years. Consulted, 1893—Keratometer: R. + 2.00 c. 80°, L. + 3.50 c. 105°. (No cycloplegic used.) ℞: R. — .50 ⊂ + 1.50 c. 95° V = 1., L. + 2.50 c. 105. V = .5.

Consulted, 1897—(Keratometer not used). Under Scopolomin: R. + 1.00 ⊂ + 1.50 c. 75° V = 1., L. 1.00 ⊂ + 3.50 c. 105° V = .6. ℞: R. +.50 ⊂ + 1.50 c. 75°, L. + .50 ⊂ + 3.50 c. 105°.

Consulted, 1899.—On direct ophthalmoscopic examination was

surprised to note marked increase of astigmia, which suggested using keratometer again.

Keratometer: R. + 4.00 c. 80°, L. + 5.00 c. 105°.

Under Scopolomin: R. + 3.00 c. 80° V = 1., L. + 4.00 c. 105° V = 1.

℞: R. — .50 ⊂ + 3.00 c. 80°, L. — .50 ⊂ + 4.00 c. 105°.

Were it not for the keratometric measurements one might assume that the scopolamin had not brought about a complete cycloplegia, especially since the vision of the left eye was subnormal until the acceptance of the + 4.00 c. Another interesting fact is that so much change could take place in the *amount* of the astigmia with so little variation in the *axis*.

Lucien Howe (Buffalo): At such short notice it is impossible to go over the record of a long series of cases in order to reach conclusions which are worth publishing. If a change in the axis does occur it is probably not in a very great degree nor in any decided proportion of cases else it would have attracted attention among the millions of repeated and exact examinations which have been made by trained observers long ago. Moreover, in cases in which there does seem to have been some change at one time there still remains the doubt as to whether a slight error had not been made in earlier examinations. The Symposium will be interesting in showing how many have actually seen individuals in whom this change in the axis did occur.

Royal S. Copeland (Ann Arbor): I have long believed that astigmia is often a variable condition, liable to change. A case in point is the following, the patient presenting this day. Mrs. G. N. B., aged 25, V., O. D., = 20/30, O. S., = 20/160. Under atropin: O. D., = 20/80, O. S., = 20/200. Refraction resulted

as follows: O. D., + 1.50 D. C. ax. 90° = 20/20; O. S., + 2.50 D. C. ax. 90° = 20/30. December 15, 1904, this same patient was examined by the late Prof. George E. Frothingham, and, under atropin, showed a hyperopia in each eye of + 1.75 D. S. = 20/20.

This is one of many cases met in my practice showing the change in the refractive power of the eye. Undoubtedly, the ciliary muscle is able to adjust itself in its contraction and correct or modify an astigmia. An actual change in refraction cannot be positively shown except after the use of a cycloplegic, as in the case cited.

Many similar experiences during the past dozen years or more have confirmed me in the belief of the changeableness of astigmia, as well as of other errors of refraction. Systematic, periodic and scientific examinations of the eyes of school children, in my opinion, must establish this fact.

CHRONIC INFANTILE STRIDOR.

Frank B. Seitz, M.D., Buffalo, N. Y.

This case is reported because it is the only one the referring general practitioner, another laryngologist or I had ever seen; because there is scant mention of this trouble in text-books, and, further, because Dudley Wright, of England, thought it of sufficient interest to report three nearly similar cases to the O. and O. Society at Cleveland. The case follows:

Clara L., age three, was brought in by her parents, who stated that she had had scarlet fever three months before, from which she seemed to have recovered. Soon afterward her inspiration became more and more difficult until she continually breathed with a marked stridulous noise resembling croup. In fact, while she was in my waiting room some patients would have thought she was about to die only that she played about the office and the mother's statement that she had breathed that way for two months.

No doubt the difficult breathing prevented comfortable eating, for she was nibbling cookies most of the time, partly from hunger and partly because the mother took this way to quiet her. This habit disturbed her digestion and general nutrition so that with the added drain of labored respiration she was reduced to an irritable, peevish, restless and somewhat emaciated child.

The ensiform cartilage retracted at every inspiration, the ribs were quite prominent, the rapid heaving breathing showed what an effort that function cost, the abdomen was large, and through the tense skin many prominent, very blue veins were conspicuous. Inspection of the larynx was difficult, and was done once under chloroform and at other times by using a mouth gag. It revealed

an epiglottis partly curved upon itself and nearly closing the glottis. When the epiglottis was raised with the laryngoscope the breathing at once became easier, showing that the whole trouble was in the shape and position of that member, a belief verified by not finding any other abnormality in the nose or throat.

Under the heading of "Neuroses of the Larynx," *The American Text-Book* and others describe a class of cases similar to but differing from this one in that they are of a spasmodic nature, a spasm of the larynx coming on suddenly, lasting a variable time, then relaxing.

There is no mention anywhere of a condition marked by stridulous breathing for months at a time. One author has remarked that attacks may recur—but does not say continue—for months or years. All agree that there is no demonstrable pathological change in the larynx and that it should be classed as a neurosis; that the cause is some nerve irritation, depressed innervation, choreiform condition, hysteria, pressure of cervical glands, intestinal irritation or post-eruptive disease.

Grunwald states: "The name Stridor is applied to those respiratory sounds heard whenever the lumen of the upper air passages become constricted. They are heard best at inspiration because the air-hunger in stenosis induces more intense inspiration, while the excess of C. O. 2 production is not so distressing. It is also possible for the movable parts about the aperture of the larynx to be drawn down into the constricted lumen during inspiration (by a sort of suction), while, of course, expiration can only blow them out into the space beyond."

Of Dudley Wright's cases, two were infants and the trouble was congenital. The other, a boy of 4, began stridulous breathing when nine months old, was treated with fair success, but later died of tuberculous meningitis. The doctor suspected syphilis and treated with biniodide of mercury. One died, one was lost sight of and in the other the breathing became easier.

In my case there was no symptom of syphilis in either parents or child, and on account of the previous history and present condition the diagnosis was chronic infantile stridor due to spasm of the epiglottis as a sequel to scarlet fever.

With scant authority as to diagnosis or treatment of such a case in either old or new school literature, with no subjective and only one prominent objective symptom, coming as the child did from a good general prescriber (Dr. Hurd, of Lockport), the case was quite a problem and very unpromising as to results. I felt that treatment must be more on general principles, or from analogy, almost in the nature of an experiment, that the case would require insistance, persistance and patience, and that some good results must be obtained else the child would surely succumb to oxygen starvation and exhaustion.

The indicated remedies with baths, massage, tonics, etc., had already been given with very little result. However, we continued with specially indicated remedies, such as brom, chlorine, cupr., stram., agaricus and others. A spray was used made by evolving chlorine gas, generated by mixing muriatic acid with potassium chloride, then adding water.

Externally, belladonna liniment, antiphlogistine, iodine and massage with hydrarg. ox. flav. were applied at different times. The child was occasionally chloroformed to relax the spasm, which it did to a large extent for a long time after the anaesthetic.

The result of our treatment was great easement of the inspiration, quiet breathing during sleep, natural rest and more recuperation, better nourishment and innervation. The child, at last report, still crouped after exertion or when excited, so that while the case is not what I would conscientiously call cured, there is so much improvement as to warrant the belief that with a continuance of treatment and no complications, the case will recover, which is more than anyone expected when first brought to my office.

DEVELOPMENT OF YOUTHFUL MYOPIC EYES BY PERMANENT USE OF FULL CORRECTING GLASSES.*

Dr. Pfalz, of Dusseldorf.

Since Donders, thirty-five years ago, treated myopia with glasses no radical change has been made in their application. Seventeen years ago Foerster advised full correction of young myopic eyes to stop the progress of myopia. Riley seven years ago again advised it; still the practice continued. Koenigshofer, in opposition to Donders, wrote in his *Prophylaxe der Augenheilkunde*: "For near work never use full corrective glasses."

My opinion is that their ideas were more theoretical than practical, and so I will confine myself to the experience which led me first to partial correction, but for the last seven years to full correction of myopia for near work. Control of the myopic patient is necessary to develop the principle of fully neutralizing the myopia for all near work.

If there is a relative accommodation of 2.5 D. (an empirically determined amount which has been found practical) I immediately prescribe full correcting glasses; otherwise I order a weaker glass corresponding to the relative accommodation present. In the latter case at intervals of two or three months stronger glasses are gradually given until full correction is acceptable. By this procedure there is soon noted a material increase of absolute as well as relative accommodation and an improvement in sharpness of central vision. With the glasses the myopic eye becomes like the emmetropic. Stress should be laid upon the importance of using only spectacles and not eyeglasses.

If full correcting lenses cannot be tolerated, it is due not to their

* From *Die Ophthalmologische Klinik.*

focal distance, but to the form of the glasses and often to faulty centering or to bad frames. Order periscopic lenses, as a rule, even in weak myopia and always in the high grades—above 2.5 D. astigmia, prismatic effects, over-correction and spherical aberration when reading. The very best experience has been with toric lenses.*

The following tables are of cases which I was able to observe for lengthy periods. Those in the first table were when I believed full correction was not advisable; it shows increasing myopia.

Table I.—Increase of Myopia in eyes *not* corrected for near vision.

Number	At the beginning of the observation				Years of Observation	Increase in D.		Comparing of		Age Close of Observation
	Sex and Age		Myopia in D.							
	Male	Female	Right	Left		Right	Left	Table	No.	
1	7	..	1,25	1,25	2	4,0	4,0	III	2	9
2	9	..	1,75	1,5	4	3,25	3,5	..	..	13
3	9	..	1,75	1,5	4	2,75	3,5	III	15	13
4	9½	..	0,75	1,0	1½	1,0	1,0	III	8	11
5	..	10	5,0	3,25	7	3,0	1,75	..	..	17
6	..	10	5,0	3,5	7½	3,0	2,75	..	..	17½
7	12	..	2,25	2,25	1	1,75	1,75	III	14	13
8	12	..	2,75	2,75	2	1,75	1,75	..	..	14
9	13	..	2,0	2,0	5	2,0	1,5	..	..	18
10	..	14	2,0	2,25	4	1,5	1,25	..	..	18
11	14	..	3,5	2,75	8	3,0	3,75	..	..	22
12	14	..	1,25	2,5	2½	0,75	1,0	..	..	16½
13	14	..	1,75	1,75	4	1,5	1,25	..	..	18
14	..	14	1,5	3,5	3	1,0	1,0	..	..	17
15	15	..	2,0	1,75	9½	1,5	1,0	..	..	24½
16	..	15	3,0	2,5	4	2,0	1,75	..	..	19
17	15	..	0,75	2,5	1	0,5	0,5	..	..	16
18	15	..	2,25	4,0	1	1,0	0	..	..	16
19	..	16	4,5	4,0	10	3,0	3,0	..	..	26
20	16	..	0,5	0,5	2	1,75	1,75	..	..	18
21	16	..	1,5	2,25	2	1,75	1,0	..	..	18
22	16	..	1	As. m.	3	3,5	1,75	III	38	19
23	..	16½	0,75	2,25	2	0,5	0,5	..	..	28½
24	..	18	1,5	1,75	4	1,0	0,75	..	..	22
25	19	..	2,5	2,0	3	1,0	0,75	..	..	22
	Average increase in				4 yrs.	1,91	1,45			

In each case there was an increase, and often very marked. The second is of cases where partial correction for near vision was

*Torics stronger than — 7 D. are impracticable, fragilely thin at the center or cumbrously thick at the edge.—EDITOR.

ordered; here the myopia is seen to be increasing, but not so markedly as in Table 1. Table 3 gives the cases (38) where the myopia was fully neutralized even for near vision. In one case —a very anaemic boy, aged eight and a half years, who had M. — 7.5 D. in one eye and — 1. D. ⊂ As. in the other—the myopia progressed 3.5 D. in three years. In two cases it increased 0.5 to 1. D., and in two (one-sided) but 0.25. The other cases have shown no progress at the expiration of one and a half to five years.

In the light of Heine's lecture I would ask, does there not go hand in hand with the removal of the accommodation a better

Table II.—Increase of Myopia in eyes partly corrected for near vision.

1	9	..	3,25	2,75	2	0,75	1,25	III	7	13
2	..	10	2,75	3,5	3½	1,75	1,5	..	..	13½
3	11	..	2,75	2,75	1	0,5	0,5	..	..	12
4	..	11½	2,75	2,75	2	0,25	0,25	..	..	13½
5	11½	..	2,25	1,5	1½	0,5	0,5	III	..	13
6	12	..	3,25	3,25	5	0,75	0,75	..	..	17
7	12½	..	3,25	2,75	2½	2,75	1,75	III	23	23
8	13½	..	4,5	4,0	1½	0,75	1,5	III	21	15
9	13½	..	2,75	2,75	2½	2,25	1,75	..	..	16
10	13½	..	1,5	1,75	2½	4,5	2,25	III	32	16
11	..	15	2,0	2,0	2	1,0	0,75	..	..	17
12	15½	..	1,5	2,0	¾	0,5	0,75	III	33	16¼
13	15½	..	1,5	2,0	2	1,25	2,0	..	..	17½
14	..	16	2,0	2,0	2	1,75	1,5	..	..	18
15	..	16	4, 5 u. As.	4 u. As.	10	3,0	3,5	..	..	26
16	17	..	2,75	2,75	1	0,5	0,5	III	36	18
17	17	..	3,25	2,75	1	0,5	0,5	..	..	18
		Average increase in			2,5 yrs.	1,32	1,23			

development of the corpus ciliaris and thus better nourishment to the eye with consequently a favorable influence upon the development of the myopic eye in youth? Do not these tables show that it is the lack of accommodation, not its activity, which is favorable in progressive myopia?

I would summarize my experience as follows:

1. Strive to completely neutralize the myopia in every youthful case.

2. Always use spectacles—periscopic if the myopia exceeds 2.5 D. Nose glasses and the Gasasonic patent are harmful.

3. All youthful myopes should be kept under your constant control. It is well even with those of advanced years.

4. Whether we can stop all increase of myopia is still an open question, which can be answered only by further and greater experience.

Table III.—Increase of Myopia in eyes fully corrected for near vision.

Number	At the beginning of the observation				Years of Observation	Increase in D.		Comparing of		Age Close of Observation
	Sex and Age		Myopia in D.							
	Male	Female	Right	Left		Right	Left	Table	No.	
18	18	..	2,5	2,25	2	0,5	0,75	..	..	20
1	8¾	..	1 u. As.	7,5	3	3,5	2,5	..	..	11¾
2	9	..	5,5 u. As.	5,5 u. As.	3	0	0	I	2	12
3	9	..	2,75	5,75	4	0	0	..	..	13
4	10	..	3,25	2.25 u. As.	3	0	0	..	..	13
5	10	..	1,25	1,25	4½	0	0	..	..	14½
6	..	10	4 u. As.	2,25 u. As.	4	0	0,25	..	..	14
7	11	..	4,0	4,0	2	0	0	II	1	13
8	11	..	1,75	2,0	1	0,25	0,25	I	4	12
9	11	..	3,0	3,0	4	0	0	..	..	15
10	12	..	2,0	1,75	3	0	0	..	..	15
11	12½	..	2,0	2,0	3	0	0	..	..	15½
12	..	13	6,0	4,5	1¾	0	0,25	..	..	14½
13	..	..	2,75	2,0	4	0	0	II	5	17
14	13	..	5,0	5,0	4½	0	0	I	2	17½
15	13	..	5,5	5,5	2½	0	0	I	3	15¾
16	14	..	3,5	2,25	2	1,5	1,0	III	27	19
17	14	..	3,5	3,0	5	0	0	..	..	20
18	14	..	3,0	3,0	6	0	0	..	..	15½
19	14	..	6,0	6,0	1½	—0,5	—0,5	..	..	18
20	15	..	2,5	2,5	3	0	0	..	..	17
21	15	..	5,25	5,5	2	0	0	II	8	16
21	15	..	5,25	5,5	2	0	0	II	8	16
22	15	..	5,5	5,5	2	—0,25	—0,25	..	..	17
23	15	..	6	4,5	1	0	0,5	II	7	16
24	15	..	6,5	6,5	5	0	0	..	..	20
25	15	..	8 u. As.	11 u. As.	1	0	0	..	..	16
26	..	15	1,75	7,5	4½	—0,25	—1,0	..	..	19½
27	16	..	5,0	3,25	1¼	0	0	III	16	17¼
28	16	..	6,5	7,5	5	0	0	..	..	21
29	16	..	1,75	1,75	2	0	0	..	..	18
30	16	..	2,5	2,0	4	0	0	..	..	20
31	16	..	2,75	2,75	3	0	0	..	..	19
32	16	..	6,0	4,0	1¼	0	0	II	10	17¼
33	16¼	..	2,0	3,25	1	0	0	II	12	17¼
34	16	..	3,25	4,0	6	0	0	..	..	22
35	17	..	3,25	4,0	6	0	0	..	..	23
36	18	..	3,25	3,25	5	0	0	II	16	23
37	..	18	9	8	3	0	0	..	..	21
38	10	..	4,5	1,75 u. As.	3	0	0	I	21	22
	Average increase in				3,3 yrs.	0,14	0,17			

Practical Hints

The dysphagic pain of laryngeal tuberculosis may be relieved by inhalation of anæsthesin or by a small powder on the tongue.

Anæsthesin is superior to orthoform in that the latter will not be effective unless there is an abrasion. Anæsthesin is readily soluble in alcohol, ether or chloroform, but not so in water.

Try anæsthesin as a local anæsthetic for laryngoscopic work, and even for operations; it diminishes the sensibility of the pharynx. We will be glad to have a report of your experience, especially as to its limitations, contraindications and disadvantages.

Inhalations of hydrogen peroxide—twice daily for ten minutes—have healed tuberculous ulceration of the larynx and improved infiltration when there was not ulceration. The vapor of the peroxide penetrates the respiratory passages and has seemed to be beneficial in pulmonary tuberculosis. A cutaneous tubercular ulcer healed in ten days under local treatment with peroxide, while a control sore, not so treated, continued to increase.

After a plastic mastoid operation pack for eight or nine days to prevent the cavity filling up irregularly. If there be a tendency to stenosis the packing should be resumed.

Eighty cases have been recorded of foreign body in the maxillary sinus, and thirty-six in the frontal sinus. Living insects in healthy sinuses caused the severest results. Invasion was sometimes through the natural orifices. The maxillary sinus has been invaded through an aperture in a diseased tooth, and through the opening left after removal of a tooth.

Cyanide of copper, locally to trachoma, is recommended by Galezowski, as an ointment or lotion 1 to 1,000 or 1 to 500, and even, when necessary, in a pencil containing 1 per cent. to 4 per cent. Its extremely poisonous properties must never be forgotten.

The use of iodo-nucleoid in the treatment of syphilitic affections of the throat, nose and ear, as well as for chronic bronchitis, asthma and labrinthitis is growing. It is found that smaller doses give more prompt relief than is obtained by the administration of iodide of potassium, and without digestive disturbances. The iodide in this compound is so combined that it loses its characteristic irritating properties and is rendered non-toxic, tasteless and odorless. It is easily and completely digested in the gastric and intestinal juices, and produces all the physiological action and therapeutic results obtained from potassium idodide.

The elasticity of the skin on the back of the hand is a reliable indication of the elasticity, etc., of the corneal tissue helping us to forecast the healing of a cataract operation.

In cataract cases where increased tension is dreaded use one-fourth per cent. scopolamin hydrobromate (the real thing) instead of atropin as a mydriatic, before or after operation.

In reading of radium treatment of optic nerve atrophy or in cataract we must not forget that the eye, under ordinary circumstances, cannot perceive the radium rays without the aid of a phosphorescent screen and that radium rays are not refractable. Patients with optic atrophy who retained only light perception have been able to discern outlines of objects held against a screen illuminated by light whose source was not radium.

Abstracts from Current Literature

Stones of the Sub-Lingual and Sub-Maxillary Glands.

H. Otto Sommer, M.D., Washington, D. C.—*American Med. Monthly.*

A young man, aged 28, complained of pain when talking and chewing, and a "growth" of some duration under his tongue. The lymphatics of the left side of the neck and angle of jaws were enlarged and sensitive. To the left of the frenulum sat two yellowish stones, separated by a narrow strip of mucous membrane and firmly impinged. The mucous membrane was snipped, and the larger stone came away, owing to pressure of pus from the rear—merely a little pus followed. The smaller posterior stone was similarly extracted, followed by a gush of pus. In all, four stones were obtained. A slender, dull curette was then passed into the sub-maxillary gland through its duct, bringing forth some stones and pus. The sub-lingual gland was easily probeable. Permanganate irrigation was used, and the patient returned after twelve hours with an absence of symptoms, including the glandular swelling.

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Otitic Serous Meningitis, Lumbar Puncture—Recovery.—

Francis H. Huber, M.D., New York.

A girl two and a half years old; no history of tuberculosis in the family; father alcoholic. For more than two years has had a foul right otorrhœa and large adenoids. No history of any eruptive fevers. Fourteen days before admission, the child

became restless, began to cry a great deal and acted as though greatly frightened. Four days later began to have general clonic and tonic convulsions for three minutes every half hour, characterized by a loud cry and falling to the ground suddenly. Of late the attacks have increased in frequency, but are of shorter duration. Occasionally vomiting occurred after an attack; at other times the child would cry and fall asleep. They occur at night as well as day, and are brought on by any external source of irritation. General nutrition good. Face suffused, expression dull, child apathetic, semi-comatose; extremities cold and blue. Surface generally mottled. Tongue coated, moist. Eyes convergent strabismus, moderate lateral nystagmus. Pupils dilated, the right more so; contract slowly and moderately to the light, then slowly dilate again, and again contract. Tache cerebrale easily produced. No tenderness nor edema of this area over the mastoid region or side of skull. Reflexes in general exaggerated. Lumbar puncture proposed for diagnostic purposes could not be carried out, as the violent character of the attacks brought on in attempting to put the child in position interfered with the necessary manipulations.

By exclusion we were compelled to look upon the chronic suppuration in the ear as a probable etiological factor, though no focal symptoms were present. The statistics of Pitt estimate that 5 per cent. of all cases of meningitis are of otitic origin. The pulse was becoming irregular. An exceptionally large perforation of the drum membrane could be seen, out of which pus oozed. There was no swelling over the mastoid, no tenderness or pain over any part, the temperature was 100, pulse 130, and the child cried incessantly. Besides, it had had seven attacks during the past night and eight during the day. 24 hours later. At 2.30 P. M.,

on January 11th, the usual mastoid operation was performed. After chiseling away all the diseased bone, the dura mater was seen to bulge outward, and it was apparent that there was pressure from within. I hesitated, however, to withdraw any fluid, because an infection was possible. The wound was packed, and at 4 P. M. about 30.0 grammes of spinal fluid were withdrawn by means of lumbar puncture, and at noon the next day (12th) 10.0 grammes more were withdrawn, after which the symptoms slowly but gradually improved, and the child was discharged on February 2, 1903, *i. e.*, 22 days after the operation was performed.

Two months later she presented no evidence of her severe illness. The operation was justified; in addition to getting rid of the local diseased focus, we were enabled to eliminate a possible pachymeningitis and at the same time relieve the pressure to a limited extent.

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Diffuse Sarcomata of the Uveal Tract.—J. Herbert Parsons, M.B., B.S., B.Sc. (Lond.), F.R.C.S. (Eng.), March, 1904.—*Archives of Ophthalmology.*

Diffuse sarcomata of the uveal tract are extremely rare. They infiltrate wide areas of the choroid, ciliary body, and iris, producing more or less uniform thickening without the formation of a definite tumor. They are the flat sarcomata of Mitvalsky and "ring sarcoma" of Ewetzky. In France they are known as "sarcomes en nappe ou en plaque."

These growths have received comparatively little attention, but deserve careful consideration both on clinical and pathological grounds; they are extremely likely to be overlooked, with dire results. On pathological grounds they are important because they show peculiarities which dimly foreshadow more accurate knowledge of the histogenesis of sarcomata in general.

Parsons has collected 31 cases of diffuse sarcomata, classified as flat sarcomata and ring sarcomata; 16 were males, 12 females, 23 were over thirty years of age, 5 under. Arranged in decades as to age: 11-20, 3; 21-30, 2; 31-40, 5; 41-50, 7; 51-60, 5; 61-70, 5; 71-80, 1; age and sex unknown, 3. The right eye was affected in 15, the left in 11. The most conspicuous feature in the histories which are more or less fully reported is the probability of long duration of the disease in many cases.

In most of the cases the eyes were glaucomatous, though the tension is said to have been normal at the time of operation in 4. In many of the cases the eye was excised on account of absolute glaucoma, without any definite evidence of intraocular growth. In the cases reported as having normal tension there were iridodialysis in 2, iritis in 2, and cataractous lens in 1. In one the tension varied above and below normal during the prolonged period of observation. The early onset of extraocular extension is much more striking than is that of glaucoma. That there is more inflammatory reaction than in cases of circumscribed tumors is probably true.

There seems to be a special tendency to invade and destroy the inner layers of the sclerotic in flat sarcomata; the suprachoroidal space is not usually invaded by the circumscribed type. A circumscribed sarcoma of the iris may recur in the form of a diffuse growth.

The shape and character of the cells have led several authors to diagnose these as endothelial. I am of the opinion that they are almost always if not invariably so, and the growths are endotheliomata. Not only so, but they are endotheliomata as opposed to peritheliomata.

Such an origin readily explains the ease and rapidity with which they invade all the lymph spaces and channels in the neighborhood.

The growths vary much as regards pigmentation; but that must be regarded as an epiphenomenon of no particular value in this connection.

The retina is not usually detached. Cases in which this occurs are generally combined circumscribed and ring sarcomata. The view expressed by Fuchs that diffuse sarcomata may ultimately fill the globe was early opposed by Mitvalsky, and is not borne out by subsequent investigations.

Secondary nodules are not uncommonly found in the retina in flat sarcomata. Probably ring sarcomata would be found to be more common if more serial sections were cut. Some of them are undoubted endotheliomata. I do not think that the frequency of spindle cells in these growths is a fatal objection to an endothelial origin. It is well known that proliferating endothelial cells often become fusiform or branched, and change in type (metaplasia of Hansemann) is a common feature in new growths. The essential characteristics of these growths—their diffusely infiltrating tendency—can be explained by their flatness and their endothelial origin. The ordinary primary sarcoma starts in the actual stroma cells of the choroid itself, and the cells proliferate in the directions of least resistance.

In metastatic carcinoma the growth is along the lymph spaces in the choroid. In a sense ring sarcomata are tumors *in* the tissue but not *of* it. They spring from lining cells, and proliferate in the spaces which they line, following these spaces in all their ramifications, subject only to the physical conditions of resistance. This, and their slowness of growth explain the relative infrequency of epibulbar extension, resistance being usually, but not invariably, greater in that direction. When it occurs it will be along the perivascular lymph spaces of the anterior perforating vessels and will probably be determined by immediate proximity to those of the original focus.

Platinum Rhinitis.—Lorenzo B. Lockard, M. D., Denver, Colo.

Mr. A. G., age 36, a photographer, had always enjoyed excellent health and never had any trouble referable to the upper respiratory tract until two years ago, when he began to have frequent attacks of nasal occlusion, hydrorrhea, sneezing and lachrymation. Various local and general treatments have been given without avail. The years have been almost entirely devoted to work with the popular platinum prints.

In the beginning the symptoms never appeared until he had been at work in the dark room for from thirty to ninety minutes and rapidly subsided upon reaching the open air, but at present they originate within a few minutes and never completely subside. When handling other prints the attacks do not occur.

As they are called forth by use of the dry paper, the oxalate of potash, muriatic acid and phosphoric acid with which the prints are treated need not be considered, for he never suffers when the previously cut paper is immersed in the bath.

This seemed like a clear case of rhinitis vasomotoria due to platinum chloride, but to exclude any other factor a careful general examination was given with a negative result.

The mucosa of both nostrils was highly inflamed, water-soaked and sensitive, and the inferior turbinal of either side was in tight contact with the septum. Under cocain and adrenalin they retracted to normal and the only permanent pathological condition found was a small spur upon the anterior inferior edge of the quadrangular cartilage, right. There was an accompanying acute congestion of the epi and mesopharynx.

Cauterization of the hypersensitive areas with the subsequent use of adrenalin and oleaginous sprays caused the symptoms to completely disappear for one month, after which they gradually returned. Henceforth the nose remained patulous, but

the hydrorrhœ, sneezing and lachrymation were intense after each exposure. The spur was then removed, more tissue lightly cauterized and internal treatment instituted with nothing more than partial temporary relief. Nasal tampons were unavailingly used and resulted one day in so completely blocking the nostrils that he resorted to mouth breathing, with the occurrence that night of a severe attack of laryngeal edema. This completely disappeared after two days but thereafter the use of tampons was abandoned. No relief from treatment having resulted I advised complete abandonment of this paper, since when there has not been a recurrence.

Two similar cases with almost identical histories have been seen and one of these reports that his partner suffers in the same way to such an extent that he is about to retire from the business.

A fifth case differs in one important particular. While paroxysms are precipitated by handling the dry paper, they are also produced by the use of the platinum toning solution—with which the American Aristo paper is treated. This solution is composed of phosphoric acid and platinum chloride, and here the symptoms can be definitely ascribed to the platinum, for while phosphoric acid may produce rhinitis it is of a different type.

In these five cases the condition produced was analogous to hay-fever, and the absence of any ulceration or cartilage necrosis would indicate that the platinum acts as a pure mechanical irritant.

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Chronic Trachoma, Amenable to the X-Ray.—Henry F. Cassidy, M.D., and Francis Carey Bayne, M.D., *Jour. E., E. and T. Dis.*

An artist's helper, age 23, has been suffering from granulated lids for nine years. She has been in the hands of almost every

specialist in Baltimore; has been operated upon four times, twice with grattage and twice by avulsion; has had the usual treatment with astringents and caustics. No family history of trachoma.

Both lids and palpebral mucosa are thick and reddened; there is a muco-purulent discharge, much photophobia and lachrimation; there are lines indicating scars from previous operations, and typical trachoma granules.

We began treatment November 8th, 1902, through closed lids, with cautious tentative three-minute exposures, repeated first every ten days, then five days, then tri-weekly. The exposures were given at a distance of twelve inches and the spark gap was one-sixteenth of an inch. These treatments caused excessive lachrimation, which diminished on successive exposures, and finally ceased.

After the sixth treatment the patient voluntarily declared that she was more benefited than by her nine years of previous treatment. The eyes pained less, the discharge lessened, she was able to do away with her dark glasses, and could read a little.

The time of exposure was gradually lengthened to eight minutes, but owing to dermatitis was shortened and settled down to five minutes; the spark gap increased to one inch. We used Heinze's twenty-inch coil, modified Wehnalt interrupter, giving 2,800 interruptions a minute, 2½ amperes of 250 volt direct current. By the twentieth exposure one and by the thirty-fifth both eyes were entirely free from trachomatous granules. The patient's lids are now little inflamed and not thickened. The mucous membranes are still red, but free from swelling and discharge. They still show the criss-crossing of the scars from grattage. There are absolutely no trachomatous granules, photophobia is entirely absent, and the patient uses her eyes constantly without discomfort.

If the result has been so gratifying in this apparently incurable chronic trachoma, are we not justified in assuming that acute cases will react more readily and more quickly to this agent than to the old time treatment?

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Examination of the Pupils.–Coppez. *Rev. gen. d'Ophtal., Feb.*

Examine the pupils by both bright and diminished light; in a bright light a lesion of the dilator may not be perceived because that muscle is not so powerful as the sphincter. If the pupils are unequal instill 5% cocain into the eye whose pupil is the larger; if there is no supplementery dilatation the mydriasis is due to excitation of the dilator fibres; it is due to paralysis of the third nerve if the supplementary dilatation is so great that the iris becomes almost invisible. If the supplementary dilatation is moderate (1 to 2 mm.) the pupil is normal. Then a drop of the same solution is put into the other eye; if dilatation is *nil* or very feeble we have a myosis from paralysis of the dilator fibres; if the dilatation is moderate (1 to 2 mm.) the pupil is normal. A spasmodic myosis is not affected by cocain. Now put a drop of 5% atropin into the eye with the contracted pupil; if this produces only a slight dilatation the myosis depends upon paralysis of the sympathetic. This is the case in the contracted pupils of tabetics. If a marked dilatation is produced by the atropin the contraction is due to spasm of the sphincter.

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The Effect of Neurasthenia on the Eyes.—S. B. Muncaster, M.D., Washington, D. D.—*Ophth. Rec.,* Feb.

Most prominent symptoms: asthenopia; a number of small vessels may be seen sometimes around the macula; tender spots are frequently found on the eyebrow, temples, head and spinal column; ringing sensation in the ears; reflexes heightened; maybe tremor, especially when attention is called to extend the hands;

muscular twitching about the lids and extremities. Often a small error of refraction accompanied by muscular defect will give more trouble than a high degree.

The chief difficulty in diagnosing is found in differentiating between symptoms due to neurasthenic condition and those to some slight error of refraction or imbalance. Neurasthenic troubles are fleeting and recurrent, while the organic diseases are stable. In neurasthenic patients esophoria may appear, and in a moment the symptom is changed to exophoria, or to other muscular insufficiencies. The reflexes are generally increased in neurasthenia, and as a rule diminished in organic diseases. It is distinguished from hysteria in that neurasthenia has not the emotions and convulsions. After a recovery it sometimes takes a year or more for the eyes to regain their normal tone. Make a thorough examination of the patient's eyes; first without a mydriatic, then under a mydriatic, and a third time, after the mydriatic is out, to see if all the examinations coincide. Operations on the muscles should not be performed until treatment by the family physician, or neurologist, has failed.

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Treatment of Sympathetic Ophthalmia by Injections Under the Conjunctiva of the Stump of the Eye Enucleated.—Drs. Daniel M. Vélez and Enrique Graue, Mexico.

Case 1.—The only symptoms were impaired vision with some pain and lachrymation, the opposite eye having been removed some years before. After a month's treatment by iodides and mercurials internally and pilocarpine locally, a single injection of 1. gr. of mercuric cyanide, 1-1000, containing an equal proportion of acoin, resulted in prompt restoration of vision and subsidence of irritability. The injection was only moderately painful,

but caused a transitory edema of the corresponding half of the face. A recurrence of symptoms in three months was followed by similar behavior, except that several injections were necessary to control the process. Again in three months a recurrence of symptoms required a repetition of the injections, since when there have been no exacerbations in a period of more than a year, during which time constitutional treatment has been carried out.

Case 2.—The right eye phthisical; for several years the left had suffered from monthly attacks of irido-choroiditis with hypopyon. Vigorous constitutional treatment had been ineffectual. The right eye was enucleated, and eleven days later hyphema developed in the left, which subsided completely in 24 hours after an injection into the stump of the right. A month later a very slight hypopyon occurred, also subsiding within 24 hourse after injection was practiced. These phenomena were duplicated within a few weeks, once after the use of atropin, and again controlled by injections, since when there has been no recurrence.

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Hysterical Aphonia Cured with Ferrum and Coccionella.

—Kissel.—*Hom. Rec.* from *Allg. Hom. Zeit,* Dec. 17, 1903.

Sase 1.—A girl, age twenty-five, could only whisper, and complained of a pain in the larynx, which came spontaneously or when a severe pressure was made on it. But as soon as she pressed upon the nervus medianus immediately above the wrist, or upon the nervus tibialis above the ankle, her voice regained its resonance, though there was still some hoarseness. This also took place as soon as she closed her hand, or as soon as her fourth dorsal vertebra was firmly pressed. The disease had already lasted half a year, despite efforts of a number of physicians. Urine was deep yellow, turbid, neutral and contained much triple phosphates.

℞ Ferrum. On the 23d the tongue was clean, and the appe-

tite and taste normal, but the urine remained light yellow, turbid and still rich in white gravel.

Two days later the voice had again become full, but after this the old aphony returned. A pressure on the nerves of the hand and foot, however, no more exerted its former effect of restoring the voice. Only the pressure on the fourth dorsal vertebra still served to recall it. But since this effect had not been permanent, the patient therefore received *Iron* and *Coccionella.*

On continuing the remedies, the gravel entirely disappeared in a few days. The dorsal vertebræ lost their painfulness to pressure and the voice became normal. Two years later the cure persisted.

Case 2.—A pregnant woman, age 30, for five days had complete aphonia supervening upon a laryngeal catarrh of several weeks' standing. She complained of pain and scraping in the larynx, as also of pressure in the region of the stomach, weariness, a pappy taste and poor appetite. Her tongue had a white coating, the color of the face was pale, the urine light yellow, clear and very slightly acid. Dr. Kissel first gave her *Natrum carb.* 15, *Ferrum oxydat.* 7 for two days. Then the tongue was clean, the taste normal, but all the rest was unchanged. Twelve centigrammes of *Golden Sulphur* four times a day for three days gave no improvement, but as there had been pain during micturition several times *Ferrum acet.* and *Coccionella* were given for two days, by which time the patient had recovered her voice; her complexion also became normal, and the urine had its normal acidity. The medicine was continued for a few more days, and the cure was permanent.

Societies

The American Homoeopathic Ophthalmological, Otological and Laryngological Society.— Sixteenth Annual Convention July 20-25, 1903; Boston, Mass. (Articles on Ocular Diseases reported by Dr. J. M. HINSON, Boston, Mass.)

Dr. Copeland, in his article on "THE OPERATION FOR CATARACT," states that the results of an operation for cataract can usually be determined on the third or fourth day. He feels that age is a factor hardly necessary for consideration in determining the question of operation. The elasticity of the skin on back of hand is a good and reliable indication of elasticity and condition of the corneal tissue. A flabby, soft skin indicates negative results, the corneal wound does not copatate and heal kindly; There is apt to be prolapse of the iris and infection is likely to occur.

Unfavorable cases for operation are those in which the circulation is impaired. Syphilis, kidney, heart and lung diseases are detrimental. In diabetic patients the inactivity incident to confinement in bed after the operation is to be deprecated.

In the operation for cataract *strict* attention should be given to asepsis and antisepsis. The night before the operation the patient should have a bath, shampoo and a thorough scrubbing of face, brow and eyelids. Solutions of boric acid and bichloride, 1-5000, should be used. After thorough cleansing, in manner described, the eye is bandaged with pad wrung out in bichloride, 1-5000. On the morning of operation the eye is thoroughly irrigated, a drop of atropine instilled and eye bandaged. In exceptional cases eyebrows can be shaved and lashes cut.

Anaesthetics.—A 4 per cent. solution of cocain is employed, using as little as possible, one or two instillations being sufficient. Cocain clouds and softens corneal tissue interfering with prompt return of the cornea to its proper shape and the accurate coapting of wound. Cocain should not be used until all the preparations for operation are complete. From three to five minutes is a sufficient length of time for cocaine to take effect. If the tissues of the eye are not sufficiently blanched a drop of adrenaline may be instilled.

The instruments should be *boiled* for a few minutes, placing them in an antiseptic solution is not sufficient. The opening in the capsule should be peripheral.

Dr. Copeland reported one case in which about two-thirds of the vitreous prolapsed with collapse of the globe. Normal salt solution was used. The eyeball gradually assumed proper shape; the iris and cornea assuming proper position. "A number of years later, the eye is a success." The doctor dresses the eye at end of 48 hours, using bichloride as a cleansing agent. Atropin is instilled. Dressings are renewed daily up to the fourth or fifth day.

Discussion.—Dr. Helfrich believes in strict asepis and antisepsis. In the earlier years of his practice he had two cases of suppuration in 24 operations, later two cases in 30 operations, still later two cases in 50 operations.

For the last few years under careful asepsis and antisepsis has had no cases of suppuration. Dr. Helfrich reported a case of the late Dr. Norton's in which there was loss of vitreous and collapse of eyeball. A general anaesthetic was given. After waiting about half an hour the eyeball regained its normal shape. Vision obtained after operation was 20/70 without correcting glass. The patient was highly myopic.

He does not see the advantage of peripheral capsulotomy,

neither does he believe that a secondary operation is a necessity in the large percentage of cases. He uses and favors the crucial incision and believes it makes the secondary operation unnecessary if you wait for a sufficient length of time for any cortical substance to absorb.

Dr. Kreider gave as his opinion that one-third of the cases require secondary operation where a peripheral capsulotomy has been done.

Dr. Bissel believes that suppuration after cataract extractions frequently results from infection from the lachrymal tract; he gives special attention to the preliminary treatment of the nasal and lachrymal tracts. He uses a 2 per cent. sol. of cocain for simple extractions and a 4 per cent. in extractions combined with iridectomy. If prolapse of the iris takes place after the operation he is becoming "more and more" convinced that it is better to leave it alone.

Dr. Bissell has a mattress taken to operating room and has the patient carried to bed on it. He believes that in this way he lessens the number of prolapses of iris.

Dr. Hubbard believes in regard to anæsthetics, that the use of holocain would do away with some of the unpleasant features of cocain.

Dr. Copeland considers that all cataracts in diabetic patients are *not* diabetic cataracts.

With peripherical capsulotomy there is less apt to be iridocapsular adhesions with iritis.

Gonorrheal Ophthalmia.—Dr. A. B. Norton—If the gonococcus is not present the case is one of purulent conjunctivitis. Gonorrhœal ophthalmia may occur from systemic infection. A very frequent source of infection is the hands.

Treatment.—All forms disappoint at times. If he gets the

case early (within 24 hours), he makes an application of arg. nitricum, 40 grains to the ounce, washing away the excess of silver nitrate with normal saline solution. This treatment will frequently abort the attack. Uses watch crystal with adhesive plaster for protecting the non-infected eye. For cleansing he uses formalin 1 :2000 every ten minutes.

The author does not allow a nurse to use an eye dropper. The alternate use of heat and cold is to be deprecated. Heat should be substituted for cold if there be haziness or ulceration of the cornea. He uses arg. nit. 2 to 5 grs. to ounce, or protargol 10 to 20%, 2-3 times a day. Has used protargol 40% with no pain.

Argyrol is spoken of very favorably and can be used in a strength double that of protargol.

Corneal complications are a strong indication for the *internal* exhibition of arg. nit. The most prominent internal remedies are: arg. nit.; hepar. when hypopyon is present; mercurinus; calc. hypo., for corneal ulceration in old debilitated subjects and rhus tox.

Discussion.—Dr. Shepard believes in the abortive treatment of gonorrhoeal ophthalmia. Has used argyrol 100 grs. to ounce; protargol 40 grs. to ounce. The margin of the cornea is frequently the starting point of ulceration. He does not cut off a prolapsed iris. For ulceration he uses protonuclein special or bovinine.

Dr. Swan uses white vaseline in tubes for lubricating the conjunctival sac after each cleansing. He believes it acts as a protection to the cornea.

Dr. Hooker suggests the use of cod liver oil, as it nourishes as well as protects the cornea.

Dr. Blair is afraid to use cocain preparatory to treatment in these cases.

Dr. Norton is of the opinion that the weaker silver solutions penetrate deeper into the tissues.

Electricity: Its Uses.—Dr. W. R. King advocates its use in muscular anomalies. In recent corneal maculæ, the galvanic currem, 1 to 5 milliamperes. In retinitis pigmentosa and detached retina.

Discussion.—Dr. E. W. Beebe after twenty-five years' experience with this disease believes that in 90 per cent. of uncomplicated cataractous opacity the progress can be stayed by the galvanic current, and thereafter the vision increased at least 5 per cent. by actual tests. Has under observation case treated 25 years ago.

Remedies for Neuralgia of the Fifth Nerve. Dr. J. B. G. Custis. For affections of the first branch: acon., clem., coffea, alum.

For orbital branch combined with gastric disturbance: arg. nit., arsenic (right side of the face), nat. ars.

Agar.: coldness, pain as if sharp pieces of ice touched face; twitching, intolerance of odor of vinegar.

For superior maxillary branch: bell., bry. Baryta carb: sensation as if skin was covered with cobweb or white of egg; associated glandular enlargement.

Cedron: clock like regularity of pain. Caust.: associated ptosis (compare fluoric acid, stannum).

Colocynth: pain relieved by pressure, particularly when head is bent forward.

Capsicum: intolerance of air to affected part (hepar, intolerance of draught on *any* portion of body).

Gels., Ign., nux.

Kali bich.: pain can be covered by point of finger.

Discussion.—Dr. Hubbard. Gels., sleepiness, can't keep eyes open.

Dr. Custis. Sleepiness of gels. reminds him of Nux morsh.

Gumma of the Iris—Bilateral.—A. B. Norton, M.D.

Child, 7 yrs. of age, had Hutchinson's teeth and parenchymatous keratis. Gummatous tumors occur in inherited syphilis. Treatment: atropine locally and aur. mur. internally, which resulted in absorption of both gumma.

Discussion.—Dr. Blair of Pittsburg has used the Roentgen ray with some success in trachoma.

Dr. Payne, discussing incision in glaucoma, stated that bulging of ciliary region is due to size of cut rather than to the *angle* of the incision.

British Medical Association. — Section of Laryngology and Otology.

Seventy-first Annual Meeting (continued). Swansea, July 28-31, 1903. P. Watson Williams, M.D., Chairman. *A Discussion on the Technique of Operations on the Temporal Bone in Suppurative Middle Ear Disease* (continued).

Second Paper by Prof. Arthur Hartman, Berlin.

"Only in those cases of abscess of the mastoid in which the internal wall of the abscess appears to be healthy during the operation and in which there is no swelling of the posterior and superior wall of the meatus and of the upper part of the tympanum can we confine ourselves to the removal of the diseased bone. In other cases the antrum should be opened."

Too much dependence must not be placed on descriptions of operation, and measurements from the surface and supra-meatal spine to the facial nerve and semi-circular canals;—of more importance is the examination of specimens, and still more, is the practice on the cadaver.

The first operative treatment for labyrinthine suppuration was published by Jansen. In the majority of cases the disease extends from the mastoid through the semi-circular canals. In operating

"the horizontal semi-circular canal is opened first. We must follow it just behind the facial canal until we reach the vestibule. A probe can then be introduced, coming out through the oral window. By following the anterior part of the horizontal canal one comes very easily into the vestibulum."

Always before operating the speaker advised cleansing the tympanic cavity and antrum with his specially divised canula,—because by this means he has in some cases obviated operating. And during the operation inspissated matter and cholesteamatous masses should be syringed out and not removed by spoon, as the epithelium is less lacerated thereby,—in this manner small spots covered with well-nourished epithelium are left on the inferior and superior wall of the meatus, on the internal part of posterior wall, some parts of surface of the internal and upper wall of the tympanic cavity and antrum; from which spots epidermization can extend.

Third Speaker. DUNDAS GRANT, M.A., M.D., F.R.C.S. Regarding acute suppuration remarked, "it might be said the radical operation was too often performed and it was his opinion that the non-radical operation for acute inflammation too seldom." He usually plugged the cavity for forty-eight hours after the operation, then removing this pressed the skin down into the hollow by means of gauze dressing.

In the radical operation he always used Stacke's guard or preferably a probe devised by himself to avoid injuring the facial nerve and semi-circular canals. Unless the Stacke guard is manipulated by a skillful assistant the toe of it may by leverage be pressed sufficiently hard to injure the nerve. Another possibility is that the guard or probe may be introduced by mistake into the sinus tympani,—the cavity lying below the facial nerve and thereby make the operator lose his bearings.

The speaker had found Körner's flap satisfactory, but for cover-

ing very large surfaces he considered Ballance's flap preferable. He did away with the tendency which this flap has of detaching from the anterior wall of the meatus by lessening its tension by making a longitudinal incision along the upper wall of the meatus.

Fourth Speaker. R. C. Ellsworth, F.R.C.S., "showed some sections displaying the 'accessory antrum,' previously described by him, it lay above, behind and external to the antrum proper. Also described a vein which skirted the accessory antrum, originating in the spongy tissue of the periosteum surrounding the antrum proper and opening into the sigmoid sinus just below the knee. This vein," he thought, " was the source of infection in those cases of sigmoid thrombosis without erosion of the sigmoid groove. This vein was a constant vessel."

Fifth Speaker. Themistokles Gluck, M.D., Berlin, reported two cases to show to what an extent operations may be successfully practiced, giving operative technique. The article is so replete with information it is impossible to abstract and will appear in extenso in a subsequent issue of this journal.

Sixth Speaker. W. Jobson Horne, M.D., B.C. Cantab, referred to the relationship of the posterior bony wall of the meatus to the facial nerve and considered more of this wall could be cut away than was generally done and without injury to the facial nerve." The more extended removal of posterior wall established better drainage, accelerated healing and lessened the possibility of subsequent narrowing or stenosis of the meatus.

Seventh Speaker. Herbert Tilley, F.R.C.S., preferred several small grafts to one large one, because in the latter case if the single one does not take root the grafting is an entire failure, while in the former some will grow and from those that do healing will take place without subsequent operation.

V. Delsaux, M.D., Brussels, recorded his and a colleague's experience in which they discontinue plugging on the second day,

then fill the cavity with boracic acid and at the end of a fortnight a granulating surface is found with islands of epithelium, which gradually spread lining the whole cavity.

Replies.—Dr. McBride did not deem it advisible to retain cholesteatoma membrane for covering as advised by Drs. Grant and Hartmann.

Prof. Hartmann said that he as well as Stacke himself had discarded the use of Stack's protector.

On the Local Use of Formalin in the Treatment of Nasal Polypi Before and After Operation on the Same by the Usual Methods. —Adolph Bronner, M.D., Bradford.

The author believes, as do Zuckerkandl, Hajek, Grunbaum, Lack and others, that polypi are caused by the irritation of pus exuding from diseased accessory cavities. Removal is done with the cold or cautery snare and then treats as follows: "After a few days a formalin spray (1 in 500, up to 1 in 100) is ordered to be used tter dies for a week or two, and then less frequently. The patients are all asked to return again in one month. If the spray is painful (and some patients are extremely sensitive to formalin) I order a paroleine spray to be used before the application. The formalin not only acts as a powerful disinfectant, but also causes contraction and hardening of the diseased tissues. I also order insufflations of tannoform, aristol and boric acid. As long as there is much discharge an alkaline spray should be used. Often the middle turbinal is extensively diseased.

In these cases I remove the anterior part of the bone by forceps or snare. Messrs. Mayer and Meltzer have recently modified Grunwald's forceps and made them larger and stronger.

Discussion. Dr. Herbert Tilley did not believe the majority of polypi to be caused by suppuration. He always divided polypi in two classes: (1) those which were and (2) those which were not associated with suppuration.

Dr. Childe advocated the removal of polypi with forceps according to the method of Sir Mitchell Banks. He thought it was not possible to be too thorough.

Dr. P. Watson Williams thought formalin acted as did the galvano-cautery, to wit, produced a sort of boiling of the parts, and was an excellent antiseptic.

Dr. Bronner replied he applied the formalin on a brush of cotton strictly limiting its action as he would a stronger caustic.

Illustrations of the Effects Produced by the Singing Voice in a Suitable Medium.—Arthur G. Haydon, M.D., London.

The author claims bringing before the notice of the B. M. Assoc. an entirely new subject,—while the abstractor finds only a superficial consideration of the subject that Dr. H. Holbrook Custis, of New York, several years ago read papers upon and has incorporated in his book on The Voice. The idea that Dr. Custis demonstrated is that vibrations of each note of the singing voice would produce certain figures on a delicate membrane, upon which a fine light powder was sprinkled.

A Discussion on the Upper Respiratory Tract as a Source of Systemic Infection.—**First Paper** By F. De Haviland Hall, M.D., F.R.C.P.

Ingress of bacterial diseases through the respiratory tract is only when the vitality of the mucous membrane thereof is lowered by previous inflammation.

Both the writer and P. Watson Williams had a case of typhoid fever, the infection of which entered through the larynx. "These cases confirm Budd's view that, under certain conditions, typhoid fever was infectious" and expectoration should be disinfected.

The mode of onset of measles proves almost beyond doubt that its poison enters via respiratory tract.

Similarly, Pfieffer's bacillus of influenza gains ingress into the system.

The preliminary stage of pertussis clearly indicates that its poison is absorbed by the throat.

In diphtheria there is no question that the throat and nose, especially Waldeyer's ring of glands, is the avenues of ingress in the great majority of cases. "How purely local the disease may be at its onset is shown by the two cases of Mr. Charter Symonds in which there was unilateral nasal diphtheria." Klebs-Loeffler may lurk in the nasal and buccal secretion, therefore it would be advisable to have these secretions examined before ending quarantine of patient.

Scarlet fever virus may be taken into system through the nose as well as throat. The author has had two cases of this disease develop after cauterization of the nares. He has also seen lacunal tonsilitis as result of nasal cauterization.

"Kronenberg records a case in which after an operation in the nose tonsilitis came on, followed by acute articular rheumatism. Endocarditis, pericarditis and pneumonia supervened, and the patient died. The articular rheumatism from the commencement showed signs of pyæmia." The author thinks there is strong reason to believe that the tonsilitis is the primary infective disease of the lacunae and that rheumatic fever is a secondary disease. The writer has recorded a typical case of acute pericarditis following acute lacunal tonsilitis without intervening rheumatism. "I think, therefore, clinically we may regard acute multiple articular rheumatism as an infectious disease, which runs the course of an attenuated pyaemia, and that in a large number of cases

the infection enters the system through Waldeyer's pharyngeal ring, especially the faucial tonsils."

Septic and pyaemic processes may gain entrance via these channels. Writer saw case pharyngitis due to streptococcus pyogenes followed by septicaemia, deep glandular inflammation and pericarditis, cured by anti-streptococcus serum. And another case of enormous swelling of epiglottis and right aryepiglottic fold (necessitating tracheotomy) in adult, pulse 120, temp. 101 to 99, urine albuminous, lived in unsanitary house exposed to two cases of septic pneumonia, bacteriologic examination impossible, —anti-streptococcus serum apparently cured.

Streptococcus erysipelitis not infrequently gains entrance to system via abrasions in the nasal mucosa.

The writer believes that non-traumatic laryngeal edema is always the result of erysipelas.

It is conceded by all that the tubercule bacilli can be taken into the system through any of the divisions of the upper respiratory tract. But it is only within the last few years that the tonsils have been credited with their proper importance in this line.

Second Paper. Jobson Horne, M.D., wished to consider but a few diseases of obscure origin and insidious onset; to wit, infective endocarditis, tuberculosis, lymphadenoma (Hodgkin's disease) and lymphosarcoma.

Infective endocarditis. Two cases coming under writer's observation are given of the more malignant destructive variety in which the septic process is by no means confined to the heart, but the stress of the disease is upon that organ. Infection in both cases entered via larynx. Post mortems in each case verified the connection. Infection of this disease, as well as all others under consideration, may enter through abrasion of any upper respiratory mucosa.

The vulnerable point of the larynx is the "fold of mucous membrane commencing behind the vocal process and passing obliquely upwards and backwards, to be lost between the summits of the cartilages of Santorini and Wrisberg."

From extensive deadhouse observation he draws the following conclusions: "(1) When the larynx is infected with tubercle the disease is already established in the lung. (2) That by the time the disease in the larynx has advanced to ulceration the disease in the lung has advanced to cavitation. (3) When the disease in the lung is confined to the pure miliary form the larynx is never affected."

The writer believes with Flügge that the bacilli in the worst form only are infective. Tubercular bacilli are not taken in primarily via larynx, but may enter through the glandular ring of the pharynx.

The cervical lymphatics modify or prevent the systemic infection of the bacilli taken up by the throat.

Lymphadenoma or Hodgkin's disease may be recognized as a histological but not a pathological entity. In 50 per cent. of recorded cases it originates in cervical lymphatics and tonsils themselves not infrequently affected. Already has the author published cases where the infection entered through the larynx.

Lastly, a clinical record of a case of lymphosarcoma of the mediastinum and right lung. Post mortem: No evidence of tuberculosis. "On outer side arytenoid region presented a circumscribed area of edema. On the inner aspect of right arytenoid there was the puckered scar of an ulcer." Histologically it was a round-celled sarcoma. May not the sarcomatous poison have entered via an ulcer when scar found post mortem? May not sarcoma, in the future be classed among the numerous infective granulomata, included under Hodgkin's disease?

Third Paper. By J. L. Goocale, M. D., Boston, U. S. A. This writer considers it from the histologist's or microscopist's standpoint. Diseases are divided into acute and chronic infectious. In the acute infection "the pathogenic organism invades the tissue either in virtue of its virulence or as a result of the temporary lowering of resistance of the organism." In chronic infections "alterations have occurred in the histological or anatomical structure of the tissues which permit the development on or in them, of saprophytic bacteria, and the disturbances produced are due to the absorption into the system of products of decomposition." The lymphoid tissue is covered with a dense resistent mucous membrane similar to rest of the throat, but the invaginations of this membrane into the mouths of the follicles is comparatively loose." Fluids, finely divided particles and micro-organisms can penetrate the loose membrane much easier than the dense. The mucous secretion also keeps the particles from traversing the intercellular deficiencies of the lacunal epithelium. Normally, on account of the wide mouths of crypts, particles easily wash out. But in acute inflammation, retrograde metamorphosis, the mouths are constricted and retention takes place.

Acute tonsilitis, histologically defined, is a diffuse parenchymatous inflammation, due to absorption of toxin formed or retained in the crypts.

In normal retrograde metamorphosis of this tissue contraction proceeds from within outward, but if tissue has been frequently inflamed the mouths of crypts are stenosed, contraction is from without inward, therefore contents retained, it decomposes and disease is set up. This causes the following clinical symptoms (even though not discernible upon ocular examination): "pallor,

impairment of strength and spirits, fetid odor of breath, gastric disturbances of various kinds and abnormal susceptibility to infectious diseases."

The writer has seen two cases of obstinate acne of several years' standing completely cured upon evacuation of deep-seated, concealed, fetid collection of matter from the tonsil.

He also believes that peri-tonsillar abscess "is due to the rupture of intra-follicular abscess into the efferent lymphatic channels."

Long-continued persistence of Klebs-Loeffler bacillus may be due to this chronic lacunal inflammation, therefore such tissue should be removed.

Fourth Paper. By F. J. Poynton, M.R.C.P. He viewed it from a pathologist's standpoint. German experiments demonstrated that a streptococcus might be present in a diphtheretic throat which would produce suppurative arthritis in animals. The speaker isolated a diplococcus from rheumatic angina which would produce, on intravenous injection, rheumatic fever in joints, heart and pleuræ. F. Meyer and Menzer further demonstrated (1) that micro-organisms may enter the tonsils and are carried by the blood vessels, or in other cases by the lymph channels. (2) The micro-organisms have been isolated from the blood in man and found in the local lesions. This conclusively demonstrates "that a local focus in the upper air passages may be the cause of a general infection."

Another important but disquieting fact, also established pathologically, " is that in many instances when once the micro-organisms have gained access to the general system they make themselves new homes in the tissues."

Third point equally important is we really do not know why it is micro-organisms probably always present in the throat suddenly

become dangerous. This is the weak spot in bacteriology at present. The factor of personal resistance must be admitted to a certain extent, but it is not sufficient to explain all cases.

"Very probably infection from the throat may take place without any appreciable local symptoms."

Fifth Paper. By Herbert Tilley, M.D., F.R.C.S. Considered infectious under two sets of circumstances. (1) When a chronic purulent focus exists the general health may suffer in a very profound and serious manner as a result of the constant absorption of septic material. (2) When operative procedures have been carried out in these regions very grave and even fatal results may ensue if due care has not been maintained to provide for and maintain surgical cleanliness of the parts."

Regarding the first, we need but recollect "the loss of energy, mental apathy and indifference, loss of appetite, wasting and sallow complexion" so often accompanying chronic empyemia of the accessory cavities. Dr. Wm. Hunter thinks, in cases where the digestion is normal (hydrochloric acid of gastric juice normal) this acid renders inert the pus. Or in weakened digestion the diminished amount of free acids allows the pus to be absorbed.

2. Septic infection following operations. Cases were mentioned where this had followed cauterization and removal of the turbinals, operations on the several sinuses and removal of the tonsils. Also a case of chronic abscess in Luschka's tonsil which, on evacuation, was followed by a septic sore throat and empyema of one antrum, and finally by a septic rash which progressively extended to the knees, appearing very like scarlet fever.

Great care in cleansing the surfaces to be operated upon with antiseptic solutions and the subsequent covering of the abraded

surface with some antiseptic oily substance was very strongly urged, even the simple procedure of cauterization should be so treated.

Sixth Paper. By Donald R. Paterson, M.D., M.R.C.P. Spoke of the occurrence of albuminuria in cases of atrophic rhinitis, and thought in some cases it seemed to be the only cause. Also drew attention to the supratonsillar fossa as a starting point of systemic infection and quoted a case of nephritis from this cause.

Seventh Paper. By Robert Woods, M.B., F.R.C.S.I. He called attention to septic mouth diseases and decayed teeth as causes of general septic infection. Also detailed a case of Hodgkin's disease in his practice which clearly started in the tonsil.

A. Logan Turner, M. D., F.R.C.S.E., confirmed Dr. Paterson's observations of septic absorption following ozœna.

L. Lamb, M.D., C.M., M.R.C.P., reported a case of acute laryngitis and œdema of glottis followed by septic pneumonia and death.

P. Watson Williams, M.D., wished to emphasize "the significance of chronic hypertrophy of the tonsils as a source of secondary anæmia from absorption of toxic products of the enormous numbers of septic and saprophytic micro-organisms in the crypts and tissues of the tonsils." In considering the relatively insignificant mechanical effects of enlarged tonsils we often overlook "the really important fact that the boy or girl who had enlarged and diseased tonsils was suffering from a sort of chronic drain poisoning." Finally, he alluded to Von Babes' researches demonstrating that pulmonary gangrene was sometimes due to infection from the retro-pharyngeal glands and tonsils, and those observations of Kocher which showed that acute suppurative osteomyelitis might be due to pyogenic infection through the tonsils.

Book Reviews

Diseases of the Eye.—By L. Webster Fox, A. M., M. D., Professor of Ophthalmology, Medico-Chirurgical College of Philadelphia; Ophthalmic Surgeon, Medico-Chirurgical Hospital. Pp. 584. Five colored plates and 296 illustrations in the text. New York and London, D. Appleton & Co., 1904.

A beautifully gotten up volume. The text illustrations are above the average and the colored plates are excellent. Clear, terse descriptions of numerous operations are given. A chapter is devoted to x-ray localization of foreign bodies in the eye, one to ocular affections in general diseases, and another to the pupil in health and disease. "Ocular troubles depending upon a lesion of the genital organs in man have been but partially studied, but there is sufficient evidence to warrant the conclusion that affections of the prostate in men probably play the same role in the development of reflex ocular troubles as diseases of the uterus in women."

Among the numerous instruments whose uses are described are the clinometer, amblyoscope and opaque patches on the correcting lens for conical cornea. This last, original with Dr. Fox, should always be tried before resorting to operation.

There are seven pages of formulary, eight of glossary, and eighteen of a good double column index.

While the book is written for the general practitioner and student there is enough original matter—the patches for conical cornea, his localizer, etc.—to make the book interesting to specialists and exclusivists.

We cannot commend this volume, however, without pointing

out an inexcusable error. Professor Fox says, "Nyctalopia or day blindness" and "Hemeralopia or night blindness" perpetuating instead of rectifying the mistake and confusion too prevalent about these terms. The alliteration of nyct and night should help the student to remember that nyctalopia means night blindness—Forster's and the Standard Dictionaries notwithstanding. This word, as well as hemeralopia, derives the syllable *al* from the Greek *alaos,* blind. Night eye, seeing better in the dusk, would be nyctopia. This carelessness of medical men who are teachers and scholars is less excusable than ignorance. Compilers of dictionaries should take warning by this that it is not safe to adopt without scrutiny every medical term found in our text books—more's the pity.

Blakiston's Quiz-Compends. Diseases of the Ear, Nose and Throat.—By John Johnson Kyle, B. S., M. D. 85 Illustrations. Philadelphia, P. Blakiston's Son & Co., 1903. Pp. 2808. Cloth, 80 cents, net.

A very handy, concise compend, intended more especially for the student and for the general practitioner who does not wish to wade through matter he is not interested in to find that which he wants. After considering the anatomy and physiology—with description and illustration of some of the accessory cavities—two or three pages are devoted to bacteriology, and the rest of the General Part is taken up with methods of examination and treatment of these organs. Part Two considers the various diseases with their special treatment and operations; a chapter is given up to the Stacke operation. We are sorry that there is no description (except a picture) of Kirstein's autoscope. The anatomy of the tonsil omits mention of the plica semi-lunaris. Payne, of San Francisco, is quoted as reporting two simple mastoid operations and one Stacke under spinal analgesia—"twenty drops of a steril-

ized cocain solution" being carefully injected between the third and fourth lumbar vertebræ into the subarchnoid space; but nothing is said about after effects. For adenoid and tonsil operations lasting over fifteen seconds ethyl bromide is recommended (and described), but chloroform and oxygen is the best for longer operations.

A Syllabus of Diagnosis.—William F. Baker, A. M., M. D., Clinical Instructor of Medicine, Hahnemann Medical College, Philadelphia. Boericke & Tafel, 1904. Pp. 107. Paper, 25 cents.

A series of questions covering Bartlett's Clinical Medicine and E. H. Snader's Lectures on Physical Diagnosis, designed to help students who "hardly know where to begin the study of so large a subject" and for students or practitioners who wish to quiz in preparation for examination.

With this issue the Journal of Ophthalmology, Otology and Laryngology suspends publication until January, 1905. All its rights are reserved. Subscribers who have not paid for the current year are requested to forward $2.00 to the Publisher.

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NASO-PHARYNGITIS OR CHRONIC RHINO-PHARYNGEAL CATARRH.*

C. E. TEETS, M.D., New York.

This condition is so common that it not only brings a number of patients to the throat specialist, but the physician in general practice is frequently consulted for relief from one of the most prominent symptoms of this affection, the post-nasal discharge.

In seeking for the cause of this disease we find that in a number of cases it is associated with some nasal abnormality to which it is secondary. When a deflected or deformed septum is corrected, or the redundant tissue removed from the nasal passages, and the nasal catarrh checked, the post-nasal discharge frequently ceases. There are, however, many cases which can be traced to abnormal conditions of the naso-pharynx as a result of neglected adenoids in childhood, or incomplete removal, leaving hard stumps remaining which in time produce inflammation of the neighboring tissue.

The crude method of removing adenoids with the finger or

* Read before the N. Y. State Hom. Med. Soc.

curette cannot be too severely condemned, because not only is it unsuccessful where there exists much adenoid tissue, but threads of tissue are left hanging in the vault and the rim of the Eustachian tube is often wounded, so that these strips of membrane grow fast to the eroded rim of the tube. These adhesions between the pharyngeal wall and the Eustachian rim are not only overlooked by many who give special attention to throat affections, but to those who devote the greater part of their time to the study of diseases of the ear. I have studied such cases very carefully, and found that where the adhesions existed they not only kept up a constant irritation in the naso-pharynx, but that this inflammatory condition extended to the opening of the Eustachian tube and sometimes invaded the tube itself. When these adhesions were removed the inflammation soon subsided, and the post-nasal discharge in a short time ceased. Dr. Clarence Rice, of New York, over twelve years ago, was the first to call my attention to these post-nasal adhesions.

Sometimes the post-nasal discharge may be due to a thickening of the membrane or to a superficial ulcer located on the upper portion of the vault. A very careful examination should be made, as it is possible that this post-nasal secretion may come from the sphenoidal sinuses, simply passing down into the rhinopharyngeal space and not arising there. This affection may be due to some constitutional trouble, so that we could not expect improvement from treatment direct to the nasopharynx alone.

Tornwaldt believes that many cases of nasopharyngeal catarrh, especially those in which crusts are observed, are the result of a localized inflammation in the pharyngeal bursa, which he claims is a deep, persistent recess of embryologic significance. He claims to have cured many cases by cauterization of the diseased recess with nitrate of silver or by the insertion of the galvano-cautery

electrode. Where this inflammatory condition is present it is easily recognized by the purulent discharge issuing from the central cleft or recess of the pharyngeal bursa.

Symptoms.—The symptoms of post-nasal catarrh are so well known that it seems hardly necessary to enumerate them. The excessive secretion from the post-nasal space, the constant hawking, the feeling of dryness and difficulty of swallowing, as the result of this tenacious mucus adhering to the walls of the pharynx are the most prominent symptoms.

There is often a sensation of some foreign substance within the post-nasal space which excites the movement of swallowing, followed by ineffectual efforts to dislodge this viscid mucus, ending usually in violent gagging and sometimes vomiting. Frequently affections of the pharynx and larynx are the result of this irritating discharge. In some cases the hearing is impaired and there is also present other evidence of implication of the Eustachian tubes in the catarrhal process.

Treatment.—The first step consists in searching for the cause, and if this has been discovered, apply the indicated treatment. If there be adhesions between the Eustachian tube and the pharyngeal wall they should be removed with Dunn's post-nasal scissors or with a bent hook.

Ulcerations disappear quickly when nitrate of silver (120 grains to the ounce) is applied. Often the persistent removal of secretion by the post-nasal douche will lead to a cure; some non-irritating solution should be used so as not to increase the inflammation. All redundant tissue should be removed either by surgical means or by some astringent application.

A profuse discharge from the post-nasal space accompanied by hypertrophy of the membrane or enlarged follicles calls for either an application of the 10 per cent. solution of argyrol or

lugol solution, which consists of iodine, iodide of potash and glycerine. The old time application of nitrate of silver, 60 grains to the ounce, will also often be found beneficial, but this produces at the time of application more irritation and discomfort than does argyrol. Where there exists no hypertrophy and the membrane is covered with a varnish like clear secretion, dried on the surface, then a 10 per cent. solution of ichthargon or alumnol acts best. All mucus that has accumulated in the nasopharynx should be cleared away before applying these solutions.

REMEDIES.

Aesculus Hippocastanum.—Burning and dryness in the posterior nares with a feeling of roughness and constriction in the fauces. The discharge is slight, the pharynx being covered with a varnish like secretion dried on the surface.

Argentum Nitricum.—A feeling of rawness in the post-nasal region. Mucous expectoration resembling boiled starch, sometimes tinged with blood, but easily dislodged. Rapid accumulation of the discharge.

Hydrastis Canadensis.—The secretions are excessive and may be yellow or consist of a tenacious thick white mucus streaked with yellow. Sensation of a foreign body in the post-nasal space and hawking of lumps of yellow tenacious mucus from the posterior nares and fauces.

Kali Bichromicum.—Hawking of thick tenacious mucus, especially in the morning. The expectorations are not only stringy, but on examination strings of mucus can be seen extending across the post-nasal space.

Wyethia.—Throat feels swollen and dry, constant desire to clear the throat by hemming. Desire to swallow saliva to relieve the dryness, but this gives only temporary relief.

Other remedies which will sometimes be found indicated are: Alumina, merc. corr., sepia, sulphur, thuja.

THE LOSS OF VISION OF ONE EYE.*

By Frank B. Seitz, M.D., Buffalo, N. Y.

As papers on nearly every regularly classified disease in ophthalmology have at some time or other been read before this society, I decided to consider a small group of diseases which are entirely different in their nature, symptoms and pathology, but which bear a certain relationship to one another inasmuch as they usually have a similar result.

In this paper I will present three cases, in each of which the vision of one eye was lost, while that of the other remained normal.

Case 1. Miss D., age 22, maid: Three months ago reported that on arising she noticed that the vision of the left eye was blurred, while that of the other remained clear. There was no pain, redness, agglutination, history of injury nor other symptom to call attention to the eye except the reduced vision. There was no corneal astigmia and the retinoscopic shadow was neutralized by a 1 D. sph. O. U. V. R. = 20/20, L. 20/100. No glass to improve either eye. In the macula lutea there were two irregular exudates, both together about one-half the size of the disc. In no other part of either eye was there a sign of abnormality. The diagnosis was choroiditis centralis and the aetiology is more pleasant as obscura than as specifica tarda. Happily, under potassium iod. 5 to 15 gr. t. i. d., and merc. cor. as an intercurrent, disintegration has not progressed, for the spots are no larger, are black and more sharply defined, showing that the

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* Read before the Western New York Medical Society.

destructive process has come to an end. The vision has not improved—which was not expected from the location of the lesion —though I believe it will remain at its present acuity; and she will remain as another of the many who have partly or wholly lost the vision of one eye while retaining full use of the other.

Case 2. Mr. H., age 62, is a machinist, who on arising one morning noticed a blur before the left eye. He had done some heavy lifting the day before, had perspired freely and felt exhausted. His vision, which at a test sometime before equaled 20/20 O. U., was now the same in the right eye, but in the left was reduced to counting fingers, and there was a large central scotoma in his visual field. The retina was dotted with numerous fine hemorrhages along the entire course of nearly all the vessels. His pulse of 68 was full, strong and tense, showing, as did the other arteries examined, an atheromatous condition. The urine was 1018 with about one-fifth per cent. of albumin, and the diagnosis: retinal hemorrhage due to arterio sclerosis. This made the prognosis as to recovery of vision very unfavorable, and a warning was added that he must at once stop work or he would at any time be liable to a cerebral hemorrhage.

Retinal hemorrhages are frequently resorbed. As a rule the younger the person the better the chance, but at the age of this patient the recuperative powers are no longer vigorous, and it is usual not to expect much, if any, improvement. Hemorrhages into the retina are due to general fragility of the vessel walls in old people, with an atheromatous arterial system, local diseases of the retinal vessels as in excessive myopia, overdistention from circulatory disturbances as in embolism or thrombosis, altered character of the blood as in anæmia, purpura or albuminuria, trauma or in extensive burns of the skin.

The treatment was merc. cor. with rest, not only for the eye,

but for the whole body. The albumin soon disappeared, showing an improvement in the general condition. Unfortunately, a hemorrhagic glaucoma developed that resisted all treatment, medical or surgical, and the case went on to absolute glaucoma with consant, agonizing pain day and night, until, to save involvement of the other eye I enucleated the diseased eye. He recovered nicely, is well to-day and enjoys perfect vision in the remaining eye.

Case 3. John B., aged 40, a painter, was referred and gave the following history: Two years before he had fallen from a tree, striking on his face and causing his nose to bleed so profusely it had to be plugged. He soon, apparently, recovered and continued his work. But from that time on he did not seem to be as well as formerly, at times was quite stupid and suffered from headaches lasting days at a time. The rapidly failing vision of his right eye brought him to my office. Externally the eye and its appendages appeared normal. The shadow was neutralized by a + 1 D. S., while his vision of 20/200 was made 20/20 by a + 2 D. Sph., all of which was contradictory and suspicious. L. V. = 20/20, though it later became reduced. An ophthalmoscopic examination revealed a condition which every oculist views with sorrow, for it is well nigh incurable. The fundus was seen as through a haze, the disc was faintly outlined and protruding, the vessels full, tortuous and interrupted in spots, showing an exudate to be present, and the diagnosis was choked disc or engorgement neuritis with a very unfavorable prognosis.

Fuchs gives the following description of this condition: "The etiology of optis neuritis is a brain lesion which results either in engorgement producing the choked disc or in direct transfer of the inflammation as in tuberculous meningitis. Engorgement occurs in diseases of the brain which lead to elevation of pressure within the cranial cavity, such as tumors or hydrocephalus. As

the tumor grows it constantly arrogates more and more space to itself, and, as the skull is unyielding, the fluid is squeezed out, partly in the direction of the spinal cord and partly in that of the optic nerve. The spaces between the sheaths of the optic nerve which communicate with the lymph spaces between the membranes of the brain, are dilated by accumulated fluid, a condition termed by Stelwag as Hydrops Vaginæ Nervi Optici—dropsy of the optic nerve sheath. The oedema of the lamina cribrosa causes a compression of the central vessels, and as there is constantly pouring into the papila through the central artery a quantity of blood that cannot be completely carried off again by the contracted central vein venous engorgement and consequently a swelling of the optic nerve takes place. This swelling of the optic nerve leads to its incarceration at the spot where it fits so tightly into the foramen scleræ and extreme oedema results in the strangulated papila."

Further examination of the patient revealed a spur on the left side of the septum—on the side opposite to the eye affected—pressing tightly against the root of the lower turbinated body. This was evidently the result of his fall, and I concluded that his cerebral economy was disturbed by the accident and the outward pressure of the spur. As I thought the relief from that pressure might do some good and the removal of a spur is a small matter, I advised him to let me saw it off, without, however, promising any definite results.

The operation was followed by profuse epistaxis—proving him a hæmephiliæ—which was controlled only by repeated plugging. In a few days he had recovered and we began to build hopes; but the underlying condition in the brain had progressed too far, for the increased pressure of escaping fluid from the cranium infiltrated the orbital cellular tissue and we had a double orbital

cellulitis to complicate matters. From this he never recovered, for, six weeks after I first saw him and about two months after he had received the first warning telling him something was wrong he, after a few days of a comatose state, peacefully died.

It would be manifestly impossible for me here to go into the many classes of cases that usually result in the loss of vision of one eye. Of the corneal ulcers, either idiopathic or traumatic, which results in more or less extensive maculæ that obscure vision, of the cataracts produced by that frequent complaint among workingmen, a piece of steel in the eye, or of an engineer whose eye I enucleated after he had suffered for months from an iridocyclitis due to a piece of glass from an exploded water tube and who now makes a good living by running a switch engine; of detached retina, of sarcoma of the choroid or the innumerable instances that could be cited.

I wish rather to bring out the following points: That nowhere in nature is the "Law of Compensation" so beautifully illustrated as in ophthalmology, for many people have accurate vision in one eye while it is below normal or absent in the other. In accidents it also frequently happens that although one eye is seriously injured, the other escapes without a scratch. That the "Law of Compensation" assists the oculist quite as much as it does the general practitioner; that the loss of one eye is not such a serious matter, for many people have one almost useless eye and do not even know it.

When a patient comes to you with one poor or seriously afflicted eye you can promise with a fair amount of assurance that with proper treatment the remaining eye is saved, which is comforting to patients, who fear the dismal prospects of total irreparable blindness of both eyes.

NEUTRALIZING CYLINDERS FOR BIFOCAL LOWERS.

By Walter Gribben, Brooklyn.

The well-known objection to bifocal lenses is that since the lower lens is looked through obliquely an effect is produced as though a plus cylinder axis 180° had been added to the lower lens, the strength of this undesirable effect increasing as the strength of the lower lens increases, and also as the obliquity increases, but not in a uniform ratio. It occurred to me that by incorporating in the ℞ a minus cylinder, axis 180°, of the proper strength, the above effect could be neutralized.

The diagram, Fig. 1, is used to determine the strength of this neutralizing cylinder, which is done in the following manner: Suppose a bifocal lower to be + 3.75 s. + 1.25 c. 90° and the line of vision to make an angle of 76° with the plane of the lens. The strength of this lens in the vertical meridian is the strength of the spherical, or 3.75 D. Finding this value at the left of diagram, and 76° at the top, and following the horizontal and vertical lines therefrom to their point of intersection, we find it near the curve representing the — .25 D. cylinder, which is the one to neutralize the original combination, and the entire ℞ would then read + 3.75 s. + 1.25 c. 90° — .25 c. 180°, which will transpose to + 3.50 s. + 1.50 c. 90°.

So, suppose the lower lens of a bifocal to be + 6 s. + .50 c. 180° and the visual line made an angle of 75° with the plane of lens. The strength of this lens in the vertical meridian is 6.50 D., the horizontal line from which intersects the vertical line

from 75° on the — .50 cylinder curve in Fig. 1, and this would be the neutralizing cylinder to use in this case. The entire ℞ would then read + 6 s. + .50 c. 180° — .50 c. 180°. The two cylinders in this combination having equal values, but opposite signs and the same axis, would cancel one another, so the final ℞ would read + 6 s.

These two cases are comparatively simple to work out, but where the axis of the original cylinder is oblique, the transposition becomes somewhat involved, but perhaps not as much so as might at first be supposed.

For working out a case of this kind it will be necessary to refer to the diagram, Fig. 2, which originally appeared in the *Keystone* for January, 1903. It is used to determine the strength of cylindrical lenses in meridians intermediate between the axis and meridian of greatest power. The nominal strength of the lens is at the bottom of Fig. 2, and the strength in intermediate meridians at the left, the whole diopters being shown by full lines and the half diopters by dotted lines. The figures representing the number of degrees between the axis and the intermediate meridian in question are at the right of diagram at the ends of the oblique lines, the full lines for multiples of 15°, while the other 5° lines are dotted. The 5° and 85° lines are omitted, as the former comes very close to the axis line, while the latter comes close to the meridian of greatest power.

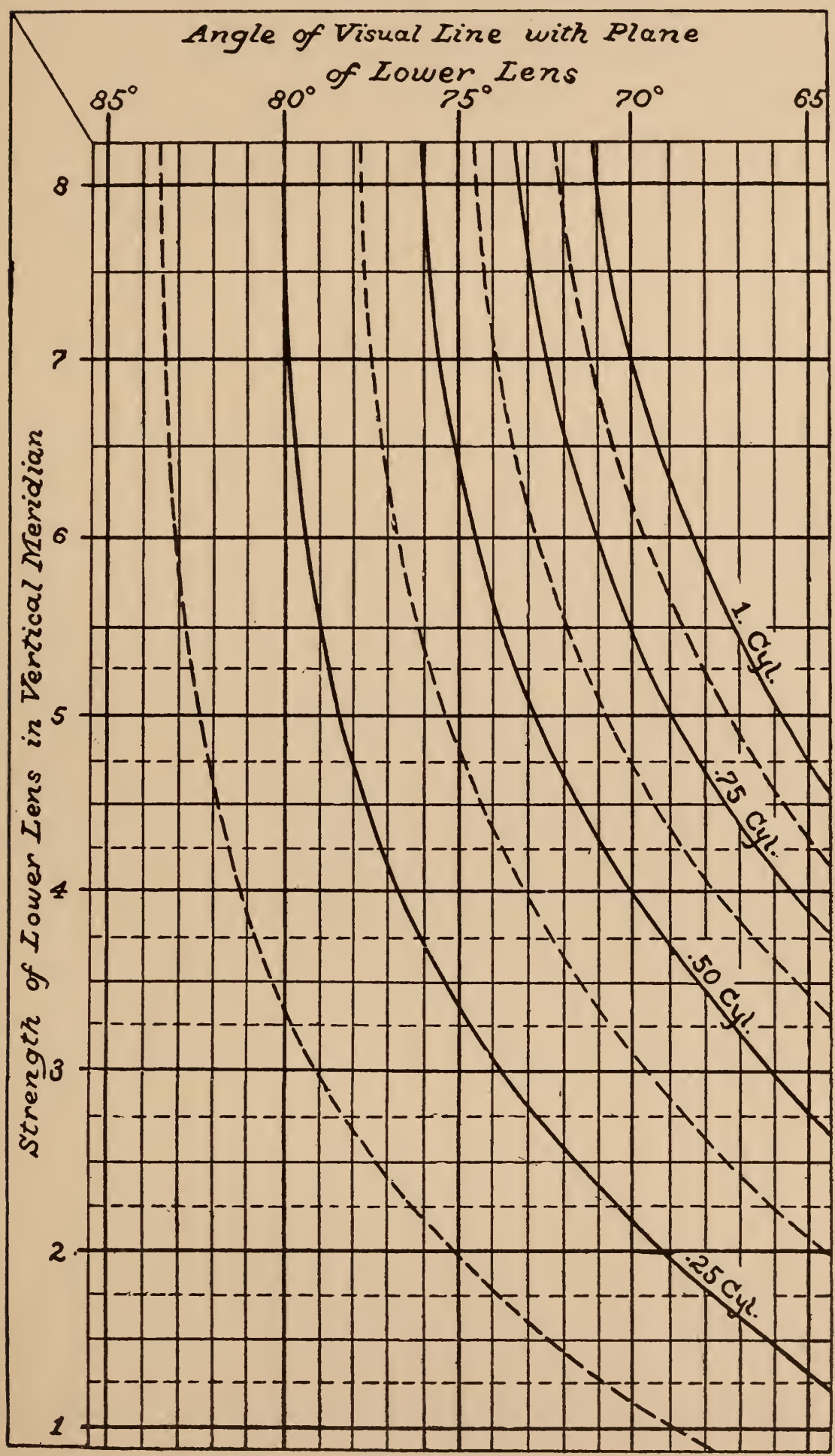
If we desired to know the power of a 2.50 D. cylinder 70° from its axis, we find the vertical dotted line midway between 2 and 3, and the point where this intersects the 70° oblique line falls midway between the 2 and 2.50 D. horizontal lines. Therefore 2.25 D. is the strength in the meridian under consideration. It will be noticed that the oblique lines do not go below 1 D. of

nominal strength. If they did they would be close together and confused. But a lens of less than 1 D. can have its strength multiplied by 10, after which the previously described process can be performed, and the result thus obtained be divided by 10.

In case of a bifocal lower being originally + 3.25 s. + .25 c. 130° and looked through at an angle of 75°, we would proceed thus: The strength in the vertical meridian is nearly 3.50 D. With this value, and 75° obliquity, we find in Fig. 1 that the neutralizing cylinder would be — .25 c. 180°, so the entire R would read + 3.25 s. + .25 c. 130° — .25 c. 180°. In addition to the spherical, we have here a cross cylinder of opposite signs and axes oblique to one another. To reduce this to an ordinary sphero-cylinder, we first determine its principal meridians, one of which falls between the *axis* of + cylinder and *meridian of greatest power* of — cylinder, and distant from them inversely as the strengths of the components of the cross cylinder. As the + and — cylinders in the cross are equal in value in the present instance, one of the principal meridians of the ultimate sphero-cylinder will fall midway between 130° and 90°, or at 110°, and the other will, of course, fall at 20°.

On the spec. frame 110° is 20° from the axis of the + .25 cylinder of the crossed pair, and 70° from the axis of the — .25 cylinder. Finding from Fig. 2, the strengths of these two cylinders in the 110° meridian, we see they are respectively + .03 D. and — .22 D., which, combined with the + 3.25 D. of the spherical, gives + 3.06 D. for the strength of the sphero-cylinder in the 110° meridian. In the 20° meridian the strengths of the three components are + 3.25 + .22 — .03 = + 3.44 D., which is the strength of the sphero-cylinder in the 20° meridian. The lesser of these two strengths is the spherical part of the sphero-cylinder, and their difference, or .38 D., is the cylinder part.

NEUTRALIZING CYLINDERS FOR BIFOCAL LOWERS



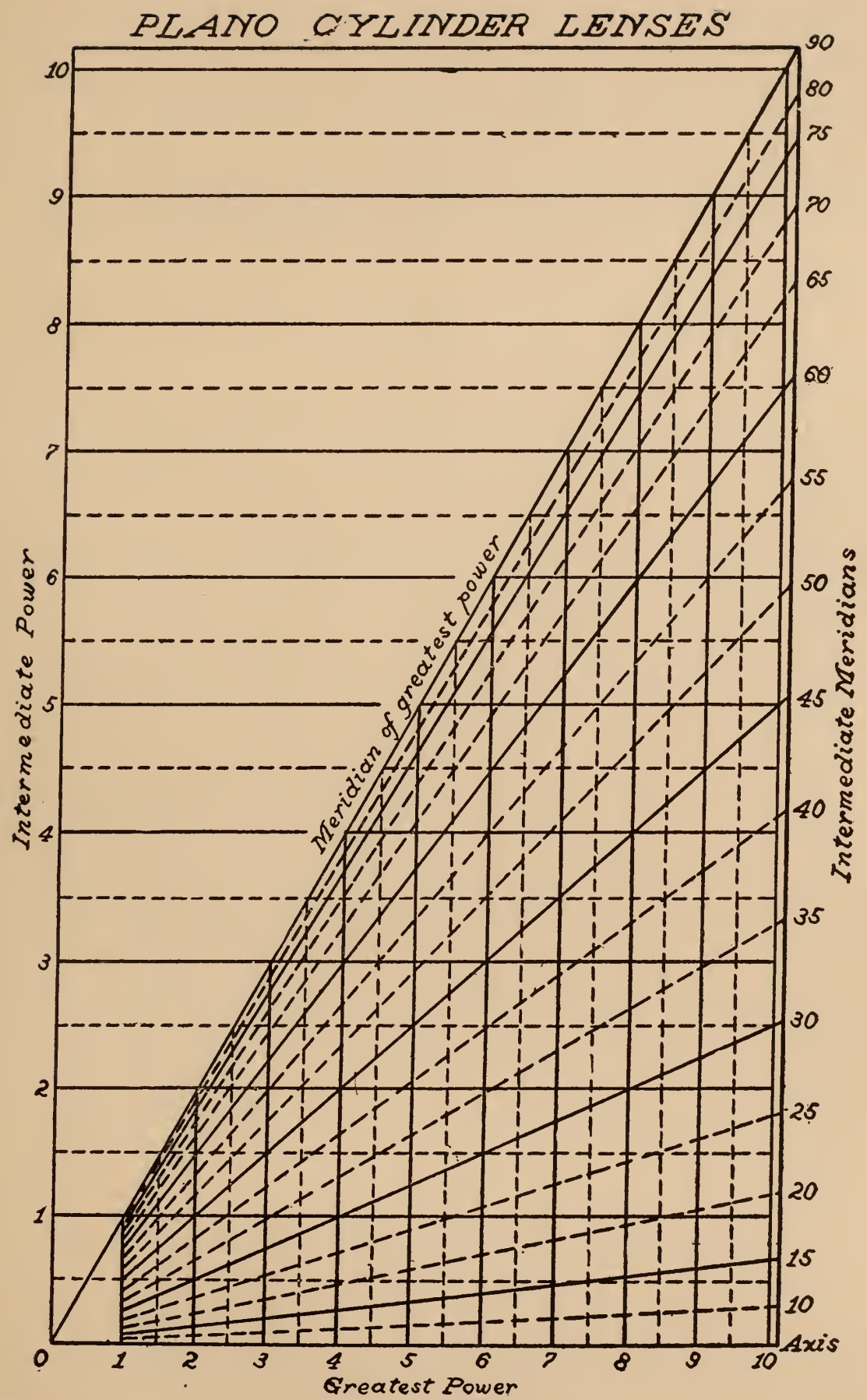
Substituting the nearest commercial figures, we have + 3. s. + .37 c. 110° for the final ℞.

Had this cross cylinder been + .75 c. 130° — .25 c. 180°, then the axis of ultimate sphero-cylinder would have been 120°. In the case of both cylinders being — in an obliquely crossed pair combined with a spherical, one of the principal meridians of the ultimate sphero-cylinder would fall between the *axes* of the two cylinders, and distant from them inversely as their respective strengths.

When it is thought desirable to neutralize the effect of oblique vision through the lower lens, the glasses would best be made in either the "split" form, or else as a "perfection" bifocal. If the cement form were used it would necessitate making the wafer with a toric surface in the majority of cases, but where the main lens was a plano-spherical, the presbyopic wafer could be cemented to the spherical surface, and the neutralizing cylinder, as indicated by Fig. 1, could be cemented to the plano surface as an extra wafer.

Of course, the angle that the visual line makes with plane of lens cannot be measured with any degree of refinement, as this angle varies as the vision is directed towards the upper or lower edge of the reading lens. However, it will be near enough for practical purposes if this angle can be determined within 2 or 3 degrees when vision is directed through the center of the reading lens. Sometimes the lower lens of a split or perfection bifocal is so beveled on its edge that it is intentionally tilted in the frame with a view to overcoming the oblique vision as much as possible, and if this tilting does not entirely correct the difficulty, what remains may be neutralized by a — cylinder addition.

During August of last year my attention was called to the arti-


PLANO CYLINDER LENSES
Intermediate Power
Intermediate Meridians
Meridian of greatest power
Greatest Power
Axis
0
1
2
3
4
5
6
7
8
9
10
90
80
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ficial astigmia produced by looking obliquely through a spherical lens, and in November I investigated the matter to some extent, the diagram Fig. 1 showing the results of the researches in a form convenient for reference. At that time I was not aware that this matter had been studied by others, but since then I have seen Prof. N. C. Steele's paper on the same subject in the *Ophthalmic Record* for December 1903.

Anyone who has strong reading spectacles of the usual kind can determine beforehand how neutralized bifocals would work by cutting out pieces of paper the shape of the upper part of the proposed bifocal, and pasting them on the spectacle lenses, so that vision is confined to the lower part, and then holding before the spectacle lenses and parallel to them, the cylinders as indicated by Fig. 1, when the same effect will be obtained as the neutralized bifocals would produce.

UPON SOME OCULAR MANIFESTATIONS IN THE COURSE OF MEASLES.

Dr. V. Morax.

Paris.

Translated from *Annals d'Oculistique* by W. U. Reynolds, M.D.

The frequency of ocular manifestations and more particularly of palpebral conjunctival catarrh in the course or in the decline of measles is a fact recognized by all clinicians. Formerly these manifestations were ascribed to the measles infection itself, but now, by reason of the notions introduced into pathology by bacteriological researches the tendency is to attribute them to an infection secondary to the general infection. But until now there have been no extensive and precise researches into the etiology of the ocular manifestations of measles, and it has seemed to me that these researches were able to furnish us some indications, not only from the ophthalmological point of view, but from the point of view of the auricular, bronchial or other manifestations that we observe so often in this malady.

Two years ago I presented to the Société d'Ophtalmologie de Paris a memoire by Dr. Trantas, of Constantinople, in which this confrère published the results of his ocular examinations of a large number of rubeolics. He had established in 76 per cent. of these a special form of corneal lesion that he described under the name of "superficial punctate exanthematous keratitis," and attributed to the presence of these corneal lesions the ocular

symptoms so frequent in the beginning of the affection. This led me to study the ocular symptoms of a number of measles cases.

Thanks to MM. Netter and Martin, who have permitted me to examine their patients at the Trousseau Hospital and the Pasteur Hospital, I have been able to collect a number of facts which I will lay before you. I will recur to the corneal lesions, but must state at the outset that my observations have not led me to the same conclusions as Dr. Trantas, and I have not been able to attribute the ocular symptoms of the onset of measles to a corneal lesion.

I will limit myself in this work to the study of *the blepharo-conjunctival manifestations* of the beginning of this disease. There could be noticed two distinct types according to the symptoms of conjunctival irritation: itching, slight agglutination of the lashes, obstructed vision, accompanied or not by muco-purulent conjunctival secretion.

The first type answers to "morbillous blepharo-conjunctivitis." The second results from an infection anterior to or superimposed upon the morbillous conjunctivitis. At least this is what seems to be shown by clinical and bacteriological study.

(*a*) *"Morbillous blepharo-conjunctivitis,"* properly so-called.

This is the most frequent type. We found it in 22 out of 26 patients; in 54 other cases akin to the second type the symptoms proper to morbillous blepharo-conjunctivitis were marked by the superimposed infection. The appearance of these ocular troubles precedes, accompanies or follows the eruption. I have never proven that it precedes the appearance of the general symptoms, malaise, fever, etc., which announce the coming of measles. A table of observations collected at the Pasteur Hospital shows that

12 times the ocular troubles had preceded the eruption from 1 to 6 days at the longest; 3 times they had coincided with it; 7 times they had followed in 1 to 3 days.

The patients complained most commonly of an ill-defined ocular discomfort, such as could follow moderate photophobia, or again of a palpebral conjunctival irritation which provokes itching or slight lachrymation. Not infrequently the lids are slightly agglutinated in the morning on rising by a secretion, always very moderate, and which appears more pronounced along the roots of the lashes (Meibomian secretion) than on the level of the internal commissure (conjunctival secretion). There is generally very little complaint of objective symptoms.

There is a slight diffuse injection of the bulbar conjunctiva; a little erythematous redness in the ciliary portion of the lids; an exaggerated sebaceous secretion at the roots of the lashes giving rise to little greasy masses which when deposited on the corneal epithelium can be mistaken for lesions. They are recognized, however, by their displacement upon blinking the lids.

Microscopical examination of the conjunctival secretion shows epithelial cells, some polynuclear leucocytes, but no special micro-organisms are found either within or without the leucocytes. A culture of the secretion reveals only the normal saprophytes of the conjunctival sac and does not indicate even a notable proliferation of these.

These ocular troubles are of relatively short duration. In my observation they averaged 4 or 5 days with a variation of 1 to 9 days.

The pathological significance of these ocular symptoms is not known to be founded on convincing information. It does

not appear, in view of the rarity of the coincidence of the body or face eruptions with these ocular symptoms, that it is a question of a manifestation of an eruptive nature or that we should in the very least connect it with the exanthem. It should be very important to know if it is a question of a direct reaction of the conjunctiva to the measles virus; if, in other terms, the parasite of the measles causes these reactions by multiplying itself in the conjunctival sac or the sebaceous glands. Granted the virulence of secretions, not a fact warrants asserting the virulence of the conjunctival secretion. It follows from all this that actually one can only make hypotheses.

(*b*) *Superimposed conjunctivitis.*

In 4 cases out of 26 patients attacked with measles the conjunctival secretion contained abundance of well marked micro-organisms whose active part in the production of conjunctival inflammation is most clearly established. In three cases the conjunctival symptoms were from several days to two months prior to the development of measles. In one single case manifest acute conjunctivitis was developed between the first measles symptoms and the exanthematic eruption.

In the first three cases twice there was acute contagious conjunctivitis with Weeks' bacilli; once sub-acute conjunctivitis with diplo-bacilli prior to the measles infection, which were apparently not at all modified in their evolution by the general malady.

These three facts have no other interest than to show again how useful bacteriological diagnosis is in analyzing complex morbid phenomena.

Acute contagious conjunctivitis was frequent enough in the old measles pavilion of the hospital for sick children, and I have

had occasion to observe and report cases of Weeks' infection contracted during the stay of a case of measles in the hospital.

The fourth case was more interesting to me; it was that of an infant attacked three days after the onset of its measles by a conjunctivitis with free secretion, which contained in abundance bacilli identified microscopically and by culture as the bacillus of Pfeiffer. With this infant, the eyes were perfectly normal at the moment of the appearance of the general symptoms of measles. The 3d of June the infant had had some fever, a little sore throat with white patches on the tonsils, which for a moment made us think of diphtheria. June 6 the two eyes were seized at the same time with muco-purulent secretion and agglutination. June 7 the measles exanthem developed on the face and knees and the next day it was over the whole body. From the 8th of June instillations of nitrate of silver, one to fifty, were made, and on June 13 all trace of conjunctival inflammation had completely disappeared.

Microscopical examination of the conjunctival secretion revealed in the cellular protoplasm and between the leucocytes, little rods in very great abundance, recalling the appearance of the Weeks' bacillus, but a little shorter and thicker. These bacilli were stained by Gram's method.

Cultivated in ascetic gelatine, combined with human blood, the conjunctival secretion developed numerous colonies, delicate, transparent, making a projection perceptible with difficulty below the level of the culture medium. This bacillus could be recultivated on ascitic gelatine, but not on the medium without ascitic mixture (bouillon, gélose). Smears made with the transparent colonies showed little stubby bacilli and in some parts showed filamentous elements; that is to say, three or four times longer than the average of short elements. These bacilli are separated

with facility; this is a characteristic which differentiates these colonies of cells from the Weeks bacillus. The Weeks bacilli clump in little masses so coherent that they do not emulsify uniformly in a diluting liquid.

The conjunctival bacillus showed a perfect identity of characteristics with the bacillus I have isolated in cases of typical infectious grip pneumonia, and with the bacillus taken from the bronchial secretion of different patients (whooping-cough, tuberculosis, etc.) by M. Elmassian. It is for that I consider it not the Weeks bacillus, but the Pfeiffer bacillus.

In a recent article Zundell has reported a certain number of cases of conjunctivitis with Pfeiffer's bacillus, and after having shown the difficulty of differentiating the bacillus of Weeks from that of Pfeiffer, he has brought forward the hypothesis that they are the same micro-organism, or more exactly, it is a question of an accidental modification of the same microbe.

The bacteriological differentiation correctly stated is evidently difficult, but it must not be forgotten that the biologic reaction of the microbe should never be neglected in the differentiation between species of microbes.

Now, I have never observed, following acute contagious conjunctivitis, symptoms rhino-pharyngeal, tracheal, pulmonary or general, that could have been ascribed to the extension of the ocular infectious agent, particularly in the case of the Weeks bacillus. Cases of conjunctivitis of Weeks bacillus have never to my knowledge transmitted by contamination any grip infection to the members of the same family or to the neighbors. On the contrary, I have observed at different recurrences in families one of whose members had a conjunctivitis of Pfeiffer's bacillus, other patients attacked with rhino-pharyngeal or pulmonary localization of grip infection. I have encountered also patients in whom conjunctival localization was followed by an extension

of the inflammation to other mucous membranes.

These clinical considerations, even more than the few differences in morphological appearance or of culture between the bacillus of Weeks and that of Pfeiffer, appear to me to warrant the differentiation of these two types of infection.

Having said this, let us seek the explanation of this conjunctivitis of Pfeiffer's bacillus. For acute contagious conjunctivitis we know that the bacillus comes always from a conjunctival affection and we can admit that our patients have been contaminated by companions of nursery or school.

Nature and Duration of Symptoms.

It is not the same for the conjunctivitis of Pfeiffer's bacillus. In fact, this bacillus can live on the bronchial mucosa in the different tissues and even in the blood. The origin of the infection is then very much less strictly limited. Further, all that has been published upon this microbe since the first work of Pfeiffer seems to show that it is of the bacillus of influenza as of the pneumococcus; that is to say, that it is able to exist a long time in the saprophytic condition on the respiratory mucous membrane after cessation of all inflammation symptoms.

Just as we see in certain lesions of the conjunctiva (hard chancre, burns, etc.) the pneumococcus saprophyte proliferating and giving rise to an acute conjunctivitis, we can admit that the measles conjunctivitis has been the opportunity for Pfeiffer's bacillus of the nasal, and perhaps even conjunctival, mucosa to proliferate and cause conjunctival reaction.

The saprophytism of Pfeiffer's bacillus appears to me as well established as that of the pneumococcus. I have isolated several times from nasal mucus a bacillus differing in no respect from Pfeiffer's bacillus, and, besides, what reader of Pfeiffer's memoir will find a really important difference between the description of the influenza bacillus and that of the pseudo-influenza bacillus?

AN X-RAY TUBE WITH ADJUSTABLE FOCUS.

R. V. Wagner, M.D., Chicago.

If one examines the outline of a shadow from a light emanating from a large area—e. g., a gaslight—it will be seen to compare favorably with the outlines in a fluoroscope or of a picture, when the x-ray is used from a tube having the anode out of focus. On the other hand, the outlines of a shadow emanating from a small area—e. g., an arc lamp—resemble the outlines in a fluoroscope or of a picture, when an x-ray tube having a sharply focused anode is used.

The x-ray emanates from the molecular bombardment of the rarefied air in the tube on the surface of the anode. The structures of rarefied air are repelled from the concave disc or cathode forming the cathode rays or stream. This cathode stream striking the surface of the anode or disc in the center of the tube produces the x-ray. To obtain a sharp focus the anode must be a given distance from the cathode, just as an object must be a given distance from a lens to be in focus.

In making a Crookes tube by all methods used heretofore, it has been practically impossible to get the anode the required distance from the cathode, so as to obtain a sharp focus, as the stem supporting the anode had to be sealed in the glass by guess, and the tube exhausted before it could be tested, when if the anode was found defective in respect to its focus, it was too late to remedy the defect, without going to an expense nearly equal to

that of making a new tube. A microscope cannot be focused accurately by a person who guesses at the distance the lenses should be from an object, without looking through them. This would be much easier, however, than to focus a Crookes tube by guess, as to the distance the anode should be from the cathode, because of the skill required on the part of the glass-blower to seal in the stem supporting the anode, so as to hold it where he thinks it should be; his judgment of where it should be is purely guesswork, because there is no way of testing, until the tube is exhausted and properly excited.

The new feature of my tube is in having the anode mounted on a threaded stem which can be magnetically operated through the glass, so as to move the anode up or down or circumferentially with the surface of the tube, to obtain an absolutely accurate focus.

The little armature on which the magnet acts cannot possibly get out of adjustment, and will hold the anode in any required position, either in focus or out of focus, as the operator may desire for some therapeutic purposes.

When a cheap metal is used for the anode, it must of necessity be out of focus because it will not stand up under the strain of having the molecular bombardment confined to a very small area, as is the case when the anode is in focus. Platinum is the only metal that will do for a sharply focused anode, as it not only stands a very high degree of heat, but is not broken down by the molecular bombardment, like inferior metals, e. g., nickel steel.

In my tube the anode is completely covered by a plate of platinum made very thick at the focus. This plate of platinum is electrically welded to the metal forming the body of the anode, and will stand an unusual degree of heat, and unlimited usage, even with the sharpest focus.

With my method of magnetically adjusting the anode, it is possible to make every tube alike, and to accurately focus the same after the tube is finished and in operation just as you focus a microscope by looking through the lenses, instead of guessing at the adjustment by observation as to the distance of the lenses.

In order to appreciate the vast difference in x-ray work due to the proper focusing of a tube, the sharpness of definition can be carefully tested by taking an ordinary wire screen, 20 holes to the linear inch (called a 20-mesh sieve), hold the fluoroscope 24 inches away from a tube, and it will be found that with a poorly focused tube the screen will have to be brought very near the surface of the fluoroscope in order that the mesh be clearly distinguished. The nearer it is necessary to bring the screen to the surface of the fluoroscope, the more the tube is out of focus; but the farther away the screen may be held and the mesh clearly distinguished, the more accurate is the focus of the tube. With a perfectly focused tube the holes in a 20-mesh screen will stand out perfectly clear at least 12 inches away from the fluoroscope, having the fluoroscope 24 inches away from the tube.

A few simple tests that will enable anyone to distinguish a good tube from a bad one should be carefully considered. X-ray workers posted on the requirements of a good tube will agree that it is more difficult to obtain a good tube to-day than it was a few years ago, before low-priced competition arose, and that two tubes made in appearance exactly alike, with practically the same degree of vacuum, and the same quality of glass for the bulb, will give entirely different results, on account of the difference in the focus effecting the definition in radiographic work. Every operator will find that out of a large number of tubes, as made heretofore, but one will do good work, and one that he is willing to adopt as his "pet tube."

HYPERSTATIC ELECTRICITY VALUE AS A THERAPEUTIC ADJUNCT.

WILLIAM L. LOVE, A.M., M.D.
Brooklyn, New York.

Many cases of skin disease baffle the most erudite prescriber. The "indicated remedy" is hard to find, and when the similimum is apparently obtained slow progress is usually made because the patient's system is frequently suffering from numerous ointments applied in succession and on the "scientific basis" that "so long as that one did not help perhaps this one will." As the immortal Hahnemann pointed out years ago, "Many a chronic disease has its skin phase," and it is the experience of all of us that many a sufferer has been greatly benefited by bringing to the surface a skin eruption that had previously been suppressed by external applications.

As an adjunct to the carefully selected remedy, I cannot too highly recommend the Piffard hyperstatic current. This is a high frequency current generated by the Piffard transformer, which is attached to the static machine, the pole pieces of the latter being drawn slowly apart an inch or more. In cases of pruritus, whether a neurosis or due to fissure, it is more nearly a specific than anything else I know.

A case in point was H. S., aged 51. Suffered from pruritus ani for thirty years. No ascribable cause. Family history good and had always enjoyed good health, except for this intolerable itching which occurred particularly at night. He would wake up, scratching. Had consulted many physicians, among them our best dermatologistis, but had received no benefit. Six applications of the hyperstatic current to the rectal mucous membrane have

cured him. Ten months have elapsed and there has not been a sign of the old trouble.

O. S. had a similar condition. Urine showed patient to be suffering with oxaluria. Proper diet and remedies were administered and eight applications of hyperstatic electricity were given. He has had no trouble for months.

Not only in pruritus is the hyperstatic current of value, but also in aphonia, eczema, acne rosacea and in kindred skin affections. It proved of particular value in the following case of eczema aurium referred to me by Dr. M.

Miss E., aged 24, in fine health and of excellent family history, had been troubled with eczema of the impetiginous or pustular variety for almost a year, being under the care of an eminent aurist until his death. Little had been accomplished, and her family physician sent her to me. Partly to his careful prescribing must the credit of this cure be attributed, but the hyperstatic sparks from the carbon point electrode certainly proved an excellent adjunct to the selected remedy. Almost immediately the discharge lessened, the crusts gradually dried up, scabs formed in the canal and fell off and in a few weeks the ear was free from discharge and eruption. There has been no sign of any return. The current stimulates the circulation, acting directly on the mucous membrane and the surrounding tissues.

The object of this paper is to emphasize not only the necessity of finding the cause of the skin affection; not only the necessity of studying the indicated remedy to the exclusion of the many prepared ointments that are recommended in promiscuous confusion, but also to point out the value in stubborn skin cases of the Piffard current—the high frequency current as generated by the hyperstatic.

I have also found this form of electricity of equal value in eczema palpebrarum and in aphonia—whether catarrhal or paretic.

Practical Hints.

Holocain muriate 1 per cent. is a better anæsthetic for cataract operation than cocain because (1) it does not dessicate the cornea, (2) its solution may be sterilized by boiling, (3) it acts more promptly—in one minute—does not require so many instillations and is less apt to cause constitutional or depressing symptoms.

The underlying cause of keratitis bullosa is probably interference with the nutrition of the cornea and perversion of nerve action dependent upon disease of the lymph system of the eye. The disease is characterized by intermissions and exacerbations, the extremely rapid course of the inflammatory phenomena, increase in tension during the acute stage, and by its connection with glaucoma which may precede or follow the bullous formation.

For chronic aphonia, open inhalations of about 15 drops of chloroform four times a day.

Dionin, although valuable in relieving pain as a symptom, is not to be relied upon as a curative agent. It must be discontinued as soon as the pain subsides, and formation of a habit guarded against. It is given in solution ½ to 5 per cent.; it is compatible with the various mydratics and myotics and with

cocain, but not with adrenalin. It may be used with mercuric solutions weaker than 1 :2,000.

Enucleation of an eye with intraocular tuberculosis, general quickly followed in eleven cases by pulmonary tuberculosis, general tuberculosis, cerebral meningitis, or a local relapse.

For delayed healing after the mastoid operation injection of paraffin into the bone cavity has quicky stimulated granulations to fill it.

The presence or absence of adenopathy is of little importance in nasopharyngeal tumors, as it may not exist even in the advanced stages.

Paraffin injections for relief of nasal deformity should be repeated small injections of pure, 110 melting point cooled till it comes like a rod from the needle, which is pointed away from the annular vein and toward the tip of the nose.

Glacial acetic acid rubbed upon the temple of a fainting patient, through hurriedly picking up the wrong bottle, caused pain and immediate erythema ; these were promptly relieved by inunction of lanolin.

Dysmenorrhœa has been relieved by removing nasal obstructions.

Abstracts from Current Literature

Further Investigation Concerning Eye Defects in Students.— Edgar James Swift, St. Louis.—*Ophth. Rec.,* March.

Of 216 students of the State Normal School at Stevens Point, Wis., only twenty-two and twenty-two-hundredths per cent. had normal vision. Of those with normal vision only one failed to disclose some manifest error of refraction or muscle insufficiency. Thirty-five of the forty-eight with normal vision showed manifest compound hyperopic astigmia in one or both eyes, while of the remainder four had simple hyperopic astigmia and four others hyperopia. In most of the cases more or less muscle insufficiency was evident. In thirty per cent. of those examined the vision of one or both eyes (the most defective where there was a difference) was below twenty-thirtieths, while between nineteen and twenty per cent.—nearly as many as had normal vision—were unable to read the twenty-fortieths line at a distance of twenty feet.

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Simple Glaucoma in the Young, With a Report of Two Cases.— C. A. Veasey, M. D., and E. A. Shumway, M. D., Philadelphia.—*Ophth. Rec.,* Jan.

Simple glaucoma in the young is a disease of comparatively infrequent occurrence; according to Priestley Smith less than one-tenth of one per cent. before the twentieth year of age. In

discussing the prognosis of simple glaucoma, in nearly two-thirds of Nettleship's cases (1889) occurring before the thirtieth year of age the eyes were myopic.

Case 1.—A. B., an unmarried colored woman, was seen first in April, 1898. No family history of any ocular disease could be elicited. At sixteen years of age the patient had typhoid fever, and vision of the right eye began gradually to fail during convalescence for about three years. From this time on there were occasional attacks of severe pain; no inflammatory symptoms. The anterior chamber of the right eye was more shallow than that of the left. The left pupil reacted promptly to light, convergence and accommodation, but the right reacted only consensually. The vision of the right eye was entirely abolished; that of the left was 6/6, and with — cyl. 50 D. axis 90°, was increased to 6/5.

Ophthalmoscopic examination of the right eye revealed perfectly clear media and a complete excavation of the optic disc, the vessels dipping quite suddenly over the margin and the bottom of the excavation being observed best with — S. 9. D., the macular region appearing practically emmetropic. No pulsation of the retinal arteries could be detected, but venous pulsation was marked. A slight increase of the intraocular tension was present. Ophthalmoscopic examination of the left eye showed clear media, with a normal disc of healthy appearance. There was a small physiological cup and pulsating veins, the latter not being so marked, however, as in the right eye. The tension was normal.

The eyeball was enucleated in April, 1899. Thirteen and a half years after the appearance of the disease the condition of the left eye has remained unchanged. Dr. Shumway found remarkable pigmentation throughout the entire eyeball, even

between the bundles of the ciliary muscle, a position in which pigment is rarely found. This unusual condition was described at some length because excessive pigmentation has been mentioned as a possible cause of the blocking of the angle of the anterior chamber in glaucoma. Some of the sections show adhesion between the iris and cornea in advance of Schlemm's canal, although in most of them the angle is free.

The lens is unusually large, absolutely and relatively, leaving a narrower space between its edge and the margin of the ciliary processes. The choroid is greatly thinned. Anteriorly the retina has large cystic spaces, and posteriorly the molecular layers contain many small empty cavities between the fibres of the supporting tissue. The kettle-shaped excavation of the optic disk is crossed by several bands of connective tissue.

The pathological examination confirms the clinical diagnosis of primary glaucoma. The interesting conditions are: The age; the great size of the lens, which, according to Priestley Smith, is one of the chief factors in the causation of glaucoma; and the extraordinary pigmentation of the eye, especially in the neighborhood of the iris angle.

Case 2.—C. N., an electrician, aged nineteen years, complained of gradually failing vision, which was first observed three years before; wearing concave lenses prescribed by an optician. R. V., without glasses, 6/200; left, 15/100. With O. D. — 7.00 D. S. ⌒ — 1.25 D. c., axis 150°, and O. S. — 3.50 D. S. ⌒ — 1.00 D. c. axis 135°, vision was improved to 20/20 and 20/40 respectively. The right pupil reacted somewhat sluggishly and the left promptly. Tension was increased in each eye, being about + 1.

There is a distinct family history of myopia, but not of glaucoma. Ophthalmoscopically the right eye showed typical glaucoma. That of the left showed clear media, and an oval disc with

a large physiological cup. The refraction was myopic. The right visual field, three days later, was almost lost. The left field was very slightly contracted concentrically. Ten months later right vision was reduced to light perception in a very small field. L. V., with glasses, 20/50; the field somewhat more contracted. Both excavations had increased; that of the left was now distinctly pathological. Congestion of the ocular conjunctiva was more marked, and tension was + 1 in each eye. The myopia of the left eye had also increased from 3.50 D. to 9. D.

For six weeks internal and local treatment were employed faithfully, in spite of which the condition became gradually worse, tension + 2. On July 9, 1903, a broad, peripheral iridectomy was performed on each eye with satisfactory results.

The interesting features of the second case are the family history of myopia, including the patient in whom the disease was mildly progressive, the age of the patient, the progress of the affection, and its apparent check by iridectomy. It would seem, from a study of the clinical history in this case, that the closure of the angle was due to pressure rather than to adhesive inflammation.

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Pathology of the So-Called Otosclerosis.— By J. Habermann.—*An. of O., R. and L.,* Dec.

He examined 12 temporal bones of 7 patients, in all of which the same bone disease was found. In 5 patients the process was found the same on both sides. It seems that the disease appeared in all between 20 and 40 (at the most 50) years of age.

Characteristic of the disease is the appearance of peculiar, sharply circumscribed foci which are present in the bone either singly, or usually 2 or 3, seldom more. It seemed to me that

the bone disease began where larger or smaller vessels enter the bone from the periosteum, and that it extends later along these vessels. Of this I convinced myself by injecting specimens of the temporal bone.

Only exceptionally was the surface of the bone ulcerated, uneven, with jagged processes, and in the internal meatus covered with scant fibrous tissue, while the ulcerated places in the middle ear were filled out with a thick fibrous connective tissue. In contrast to the mild changes on the surface, there is a great amplitude of the lesion in the depths of the bone, which in several cases affected the whole bone between the endosteum of the vestibule and cochlea on the one hand, and the periosteum of the middle ear on the other, where the process was not very extensive. I found the oldest changes in the bone usually at the point of origin of the focus; that is, at the anterior border of the oval and the external border of the round window's niche, while the latest changes were usually at the internal periphery of the focus, *i. e.,* near the endosteum of the labyrinth or at its anterior or posterior periphery. The annular ligament, the base of the stapes and the membrane of the round window became involved secondarily in the diseases by its passing over from the labyrinth's capsule.

The disease usually affected only the capsule of the labyrinth; the real membranous labyrinth was almost never involved; the endosteum was somewhat thickened or calcified if the process reached so far. I often observed that the diseased bone projected in the form of an exostosis in the labyrinthal space. In case VI. was a stenosis of the cochleal cavity in the apex and base, as well as the lumen of some of the semicircular canals by hyperostotic diseased bone. As the bone of the internal wall in this case showed an increase in size *in toto,* the lumen of the middle ear was thereby decreased.

The histologic changes shown by the diseased bone were very different at different places, and often all stages of the ostitis were to be found near one another. The fresh changes resemble greatly the picture of ostitis vasculosa of Volkmann. The hard bone of the pyramid was traversed by new-formed vessel channels which are formed by the old bones being melted away by the new vessels growing into them. In the small spaces caused by disease process there was usually found only a dilated capillary with large endothelium, around which were some fibrillae and large developmental cells, sporadically some leucocytes and often lymphocytes. At the border of these spaces, the bone had a different aspect; very seldom were large multinuclear osteoclasts and lacuna formation found. I often saw also some cells of the otherwise healthy bone at the border of the lesions that had increased in size and had formed a small court around themselves; between these cells a small canal had appeared as the first sign of the disease.

It seems that the bone corpuscles do not play the passive role so often ascribed to them, but, as my specimens show, take an active part in the process. With the formation of the vessels traversing the bone, the resorption process is usually ended, and then comes the new formation of bone and the retrogression of the vessel channels. The size of these channels depends on intensity of the cause at the bottom of the disease whereby the breaking down of the bone is sometimes very limited and sometimes extensive. The new formation of the bone comes about through osteoblasts which often lie in rows along the individual borders of the bone, but often are irregular, so that, as a result, the position of the bone cells in the new formed bones is a very irregular one. By the new formation of bone, either the existing canals and spaces are caused to disappear, and thus a completely scler-

otic bone is formed, or, as is usually the case, the spaces in the bone continue to exist, and their contents are changed into a scant medullary substance or disappear, with the exception of a small amount of connective tissue at the borders, so that the spaces are almost empty. The bone in its neighborhood, which at first had an even more osteoid character, stains deeper with eosin, becomes more and more calcareous, and is distinguished more plainly from normal bone. Its cells are usually larger, irregularly arranged, and usually no clear lamellar structure is demonstrable.

In regard to the cause of this disease of the bone, the opinions of authors are still diverse; they are based partially on clinical and partially on pathologico-anatomic findings. Katz assigns to the middle ear process, so often present, only a contributory value, and regards it as an accidentaly antecedent, just as I did in my first case; I must even now agree with him. The chief factor in the origin of the bony disease he ascribes to constitutional or dyscrasic diseases of the body, among which he includes especially, (1) the rheumatico-gouty, (2) the scrofulous, (3) the syphilitic, (4) unnamed senile changes, (5) the neuroparalytic and trophoneuritic conditions. The latter and the rheumatico-gouty condition he considers the most important.

Through the examination of other cases of sclerosis, especially through the comparison of the finding in sclerosis with those in acute and chronic otitis media purulenta, I have more and more come to the conclusion that the bone disease described is an entirely specific form of disease, whose cause I regard as syphilis. (1) Of the 30 cases, in two (examined histologically) syphilis was clearly present, as it was in two similar cases examined only macroscopically, while in a case of Schwartze it was very probably the cause. Even in the other cases, lues, although not proven, cannot be excluded with certainty. (2) The frequent

beginning of the disease at the age in which syphilis is most frequently acquired, while other diseases are rare just in this period. (3) The histologic findings in the diseased bone also speak for syphilis. I found in my specimens a chronic ostitis which usually advanced from the periosteum to the bone via the vessels, and spread under the surface; which showed a complete chronic course, and can last 30 years and more; in which there are probably relapses of acute inflammation; in which suppuration and necrosis are absent or only exceptionally present; where no bacteria have so far been demonstrated in the diseased tissue as a cause; *i. e.,* everywhere changes such as are observed in syphilis of the bone. The appearance of several foci in the bone is observed in syphilis.

As to the rarity of syphilis affecting the temporal bone, often an inflammation of the middle ear can give the impetus required for syphilis to awake here, and I can in this sense agree with the above opinion of Katz that the middle ear process so often present has only the value of an exciting factor. The finer histologic processes, described above, are similarly often observed in syphilis. The agreement of my findings with those of true syphilis of the cranial bone is worthy of notice; the only difference is that these changes are found in an unusual place, namely, the petrous pyramid.

It is still necessary to mention two circumstances that speak against these bone changes being syphilitic; viz., the lack of distinct gummatous tissue, and the rarity of any destructive process, especially caries and necrosis of the bone. But Virchow states that with an attenuation of the syphilitic virus there usually arose products which often have only the character of a hyperplasia, and mentions as an example of this kind of syphi-

litic changes the hyperostoses of the bones of the extremities, which similarly develop in the temporal bone. Soloweitschik stated in his work on syphilitic cranial affections that caries and necrosis are not to be regarded as conditions belonging to the syphilis, but only as the possible sequel of the periostitis and ostitis gummosa under especially unfavorable and accidental conditions.

The second circumstance which speaks against this form of disease being a syphilitic one is the absence of other syphilitic lesions elsewhere in the body. If, now, we examine carefully the reported cases of sclerosis, we do not find a complete necropsy given in the greater number of them, and even when it is given and contains no mention of syphilis this is really no proof that no syphilis had existed. It is precisely the osseous system alone that is most frequently affected by syphilis, while the internal organs and the skin show no lesions, and an exact examination of the bones at the necropsy is often not made. The diagnosis of previous syphilis is much more seldom made in the cadaver than it is observed in life. In some of my cases the cranium was thick and compact. I could demonstrate in most of my cases endarteritic changes later, but in some the changes might have been due to the age of the patient.

Other causes which could be assigned to the origin of this disease: (1) Acute and chronic inflammation of the middle ear. Disease of the bone does accompany acute and chronic middle ear inflammation, especially if purulent. (2) Infectious osteomyelitis.—This disease likewise enters into the bone via the vessels, and under certain circumstances can cause a return of the inflammation after the lapse of a large number of years, even 29. There also exist milder forms of this disease: ostitis vasculosa, sclerotica, granulosa and serosa. It is claimed that osteomyelitis in the

temporal bone often causes an otitis media, and runs its course under the picture of this disease. But infectious osteomyelitis is a disease of youth alone. Furthermore, even in the chronic forms of infectious osteomyelitis formation of sequestra, although not the rule, is very frequent. Finally, in this disease the cause of the infection, usually the staphylococcus is found in the bone, and can remain there many years; in the cases of otosclerosis heretofore examined no bacteria could be found as the cause of the disease.

Of other causes: In gout we have a deposit of uric acid salts in the joints, the matrix of the cartilages, the capsules of the joints, the tendon sheaths and ligaments, but the bone does not take part; i. e., a process entirely different from ours, which attacks the bone especially. Rheumatic disease of the joints is denied not only by the histologic findings, but also by the non-involvement of the other joints of the body.

The puerperium does seem to have a causal relationship to otosclerosis, but I am convinced that puerperal bone disease and this disease are two entirely different conditions. Though it must be admitted that forms of tubal and middle ear catarrh, as well as mild forms of acute middle ear inflammation can cause a similar disturbance in hearing with the characteristics of a severe interference with sound conduction, still there are plenty of cases in which syphilis can be proven to be the cause.

Symptoms of that case which show by pathologico-anatomic examination the above described lesion: Difficulty in hearing frequently attains a high degree in a short time, especially if the windows are greatly affected, but under certain circumstances, especially at first, can be mininal or even be absent. Testing will show little that is characteristic, as also in those very severe cases where there is almost complete deafness.

In the cases of medium degree, which comprise the majority, will be found those signs which Bezold designates as character-

istic for bony ankylosis of the stapes; viz., raising of the lower limit of the musical scale, negative Rinné and prolongation of bone conduction. With the small c tuning fork I find the last only three times in the twenty cases of clinically proven luetic sclerosis. Where the explanation for this lies, must be shown by further examination. Gellé's experiment is valuable in the diagnosis of stapes ankylosis.

Another symptom that often is present, subjective noises, is explainable in many cases by the extension of the disease to the round window and the neighboring nerves, the basal turn and the cochlear spiral. The changes in the internal meatus and lamina spiralis must also be taken into consideration.

Dizziness also can be caused by the spreading of the disease from the oval window onto the point of passage of the nerves of the semicircular canal, and this symptom as well as subjective noises can disappear after the cessation of the process. Diseases of the endosteum can cause a decrease in the pressure of the labyrinthal fluid and thus symptoms of irritation.

It is not difficult to make a diagnosis if the cause, syphilis, is known, but when this is not, it may be difficult to differentiate it from other processes that cause obstruction of the niches and stapes ankylosis: catarrhal inflammation of the tube and middle ear, extending from the nose, certain forms of middle ear inflammations which run their course without severe subjective symptoms and without perforation of the drum, and can lead in a short time to severe impairment of audition by organization of the exudate in the niches of the windows. The diagnosis of these forms from the luetic sclerosis is made by an exact history of the patient, and especially by the fact that in the catarrhal forms, exacerbations may often appear from external factors, catarrh of the nose, etc., and amelioration is accomplished by the catheter and treatment of the catarrh.

Delirium After Operations on the Eye-Ball.—Dr. Juan Santos Fernandez, Havana, Cuba.—*Arch. de Oft. Hisp.-Amer.*, Oct.

Two cases in which abstinence from customary alcoholic stimulation was the determining factor in producing delirium. Dr. Fernández has observed this condition six times in a very large experience, and only after cataract operations. In the cases not due to withholding customary stimulants, the removal of the bandage served to stop the delirium.—Abs. *J. E., E. and T. Dis.*, Jan.

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A New Cataract Knife.— Melville Black, M. D., Denver.—*Ophth. Rec.*, Feb.

It is fashioned exactly after the Graefe knife, except that it has a probe point; its cutting edge is straight.

The most skilled operators occasionally evacuate the anterior chamber while the section is only one-third or half completed. If the section is completed the iris falls in front of the knife's edge and is mutilated. To avoid cutting the iris when it has fallen in front of the knife, the knife should be at once withdrawn. If the iris does not go back smoothly into position, an iris spatula can be introduced into the anterior chamber through one of the corneal openings and the iris smoothed out. If a speculum is used it should be removed, and with the lids closed the eye is allowed to rest for a few moments, when it will be found that a very small amount of aqueous has formed in the anterior chamber. The lids are now to be held apart, and after fixing the eye with forceps the probe-pointed knife is carefully introduced through the puncture into the anterior chamber. The probe point of the knife is worked over the iris toward a point in the anterior chamber a little higher than the counter puncture, and is then carried down and out through the latter opening. The section is then completed by cutting out by direct pressure rather than by the sawing movement. It will be found that the section can be completed in the manner described without injuring the iris.

Book Reviews.

SAUNDERS' AMERICAN YEAR BOOK FOR 1904.—VOLUME II, GENERAL SURGERY. GEORGE M. GOULD, M. D., General Editor. Pp. 681. Fourteen full page insert plates and a number of good text cuts. Philadelphia, New York, London, W. B. Saunders & Co., 1904.

Drs. Walter L. Pyle and Samuel Horton Brown edited the chapter (51 pages) on Ophthalmology, and Drs. D. Braden Kyle and George Fetterolf the 30 pages devoted to the Nose, Throat and Ear.

This year shows a decided improvement in this excellent work in that each chapter is commenced with a summary of the more noteworthy advances and discoveries made during the year—but not in that of the nose, throat and ear.

Muscular tissue has been discovered in the optic nerves of frogs. Uncrossed optic nerve fibres have been demonstrated in man. Statistics show that isolation and the more modern methods of treatment have lessened greatly the severity and the number of cases of trachoma. Collins and Bronner show the practicability of lens extraction in myopia by 47 cases. C. S. Bull gives 5 cases of irido-choroiditis directly traceable to gonorrhoeal infection. Great advance has been made in radio-therapy; it has been used successfully in trachoma and in tubercular conjunctivitis. Mumps has been shown to be the cause of cycloplegia in two cases; ptosis

followed influenza in one case, scarlatina caused orbital cellulitis twice, diphtheria optic neuritis once, while herpes zoster ophthalmicus caused oculo-motor palsy at least thrice and optic neuritis once. Dimmer has succeeded in obtaining satisfactory photographs of the fundus oculi. The per centage of contagious eye diseases in New York State has been rapidly decreasing since the passage of the law (in 1886) requiring their isolation. Ohio, Massachusetts and Alabama are the only States which have laws requiring examination of the sight and hearing of employees of transportation companies. Exclusion of the actinic rays of light —by means of red tissue paper—helped one case of corneal ulcer; the pain, photophobia, lachrymation and injection promptly disappeared. L. Mueller, of Vienna, proposes for retinal detachment resection of the sclera, puncture of the choroid to allow escape of the subretinal fluid, and subsequent suturing of the scleral edge. The operation is preceded by a modified Kroenlein operation and the equatorial region of the globe is exposed by temporarily severing the external rectus and inferior oblique muscles. Decrease in blood pressure (from mental or physical shock, cardiac disease, etc.), is a prominent factor of glaucoma, says Zimmerman; defective excretion and excessive secretion are also factors. He believes that in certain cases in which the intraocular tension does not rise above normal, glaucoma may develop from a relatively low vascular pressure, the result of profound persistent cardiac disturbance. Therefore in simple glaucoma the blood pressure should be increased and maintained. Digitalis was found unsuitable on account of certain mydriatic effects. Strophanthus, acting upon the heart muscle rather than upon the blood vessels, was very satisfactory in doses of eight minims four times a day. Adonis vernalis was found equally effective. There is a great tendency for the mixture of atropin and adrenalin to cause atropin poisoning in persons otherwise not susceptible to this drug.

A case of nasal hæmorrhage refractory to pledgets of cocain and adrenalin and even to electric cautery was cured by curetting the entire mucous membrane over the bleeding surface—the anterior third of the septum about 1 cm. above the nasal floor. Nasal polyps are always associated with dead bone. Anything which seriously hinders free drainage from the upper half of the nasal cavity, or which promotes acute or chronic irritation of the nasal cavities, predisposes to disease of the sinuses adjacent to the nose. Among the exciting causes are the acute infectious diseases, particularly influenza, trauma—too often operative—dental irritation, and inhalation of dust. Too much reliance has been placed on trans-illumination in the diagnosis of frontal and antral sinusitis. The severe pain of empyema of the sphenoidal sinus is sometimes located in the ears or the temperoparietal region. One case of severe obstinate hemorrhage after tonsillectomy in a man aged 46 was cured with silk ligatures through the anterior and posterior faucial pillars. In another even this failed; it was controlled only after a cylindric tampon of cotton wool the size of the little finger had been passed downward through the cavity behind two sutures 3 cm. apart which had already closed the cavity; at the end of 24 hours sutures and tampon were removed without any recurrence of the bleeding. With Valentin's modified cystoscope, the salpingoscope, the naso-pharynx can be inspected with greater accuracy than by the ordinary method. Its electric lamp of low voltage does not perceptibly heat the instrument; the latter is readily introduced along the inferior meatus unless there is marked deformity. Four pages are devoted to Wyllie's method of treatment of stammering by the general practitioner and his physiologic alphabet. Examine for adenoids all children with spasmodic torticollis; the latter has been cured by adenoidectomy, and one case is reported as following that operation—it was cured

by suggestion. Stoker has obtained gratifying results by treating chronic dry catarrh of the middle ear by pumping ozone into it through the Eustachian catheter for three minutes two to four times a week—the ozonizing tube leads from a Ruhmkorff coil. (Great care must be exercised not to lacerate the tissues and cause emphysema, that might prove as fatal with ozone as with ordinary air.) Sargent F. Snow treats many cases of chronic catarrhal deafness by throwing through the Eustachian tube jets of air under pressure passing over a supersaturated solution of gum camphor in tincture of iodin. To anæsthetize the drum membrane cleanse thoroughly with hydrozone then apply on a small cotton pledget 5 per cent. to 20 per cent. of cocain (not its salt) in equal parts of absolute alcohol and anilin oil; anæsthesia is gained in from 10 to 15 minutes. Incise with a protected Graefe knife.

Examine the pupils by both bright and diminished light; in a bright light a lesion of the dilator may not be perceived because that muscle is not so powerful as the sphincter. If the pupils are unequal instill 5 per cent. cocain into the eye whose pupil is the larger; if there is no supplementary dilatation the mydriasis is due to excitation of the dilator fibers; it is due to paralysis of the third nerve if the supplementary dilatation is so great that the iris becomes almost invisible. If the supplementary dilatation is moderate (1 to 2 mm.) the pupil is normal. Then a drop of the same solution is put into the other eye, if dilatation is nil or very feeble we have a myosis from paralysis of the dilator fibers; if the dilatation is moderate (1 to 2 mm.) the pupil is normal. A spasmodic myosis is not affected by cocain. Now put a drop of 5 per cent. atropin into the eye with the contracted pupil; if this produces only a slight dilatation the myosis depends upon paralysis of the sympathetic. This is the case in the contracted pupils of tabetics.

If a marked dilatation is produced by the atropin the contraction is due to spasm of the sphincter.

SUBJECTIVE SENSATIONS OF SIGHT AND SOUND, APIOTROPHY, AND OTHER LECTURES. SIR WILLIAM H. GOWERS, M. D., F. R. C. P., F. R. S., Hon. Fellow, R. Coll. Phys., Ireland; Member of the Soc. Medecins Russes of St. Petersburg, and of the Royal Soc. of Science of Upsala, etc. Being the Second Series of Lectures on Diseases of the Nervous System. Pp. 250. Philadelphia, P. Blakiston's Son & Co., 1904.

These ten interesting and valuable lectures have appeared in print before, but all have been carefully revised and the first—Subjective Visual Sensations—rewritten and rearranged in the light of later experience (it was the Bowman Lecture of 1895), but its chief conclusions have not been modified. One object of its republication is the promotion of the collection of many other facts observed with care and recorded with precision. "Subjective Sensations of Sound" should be studied more systematically, instead of being passed over as too common to merit attention. There is a prospect that our ultimate conceptions of the use of drugs may be recast through the discoveries regarding radioactivity and the possible nature of the elementary constituents of matter.

Whatever Dr. Gowers writes may be depended upon as of value and interest. These ten lectures, dating from June, 1895, to April, 1903, have each practical lessons for us to-day, some of their suggestions—*e. g.*, the designation of musical notes and sounds used in testing the range of hearing—having been generally adopted.

His study of Subjective Visual Sensations is devoted mainly to those associated with migraine and epilepsy. Those of the former belong to a lower class than those of the latter; they are comparatively simple. A number of pages and illustrations are occupied by descriptions of the various spectra, but "far more observations, precise and detailed, are needed to enable any definite inference to be drawn regarding the indications of these phenomena."

Partial disease of the higher visual center seems to lower the function of the whole field. There is some capacity for compensation by the other hemisphere. This may be one reason why the pathological evidence of this center in man is so scanty. Another cause may be found in the fact that this center is in the region of the blood supply of two different arteries, and so is seldom entirely destroyed.

Tinnitus aurium is most commonly an excitation of the auditory nerve, but sometimes—especially if warning of an epileptic fit—the cortical auditory center is its source. In rare cases this has been proven by the discovery of organic disease in this region. Sensations precisely such as are excited from the periphery may conceivably be of purely central origin. Subjective sounds which originate in the auditory center of the cortex are referred to the same seats as are those of labyrinthine origin. "The precise character of labyrinthine sounds needs to be carefully noted, since it will probably prove to be important when we obtain more careful and discriminating observations." (It is a practical help in choosing the remedy. But we must be on our guard, as the most extensive vocabulary is quite inadequate to describe our sensations and the patient's similes are often misleading.)

Gowers would roughly classify labyrinthine sounds as: (1) Crude sounds, hissing, humming, rumbling, machinery, etc. (2)

Tones, a bell, whistle, simple musical note, etc. (3) elaborate sounds, music or voices, distinct or indistinct. The difference between continuous and pulsating sounds is probably of significance only when the sound does not change from one to the other when its intensity varies.

One of the most interesting chapters is on Abiotrophy—degeneration due to failing vitality. It may be cutaneous or in the muscular as well as in the nervous system. The optic nerves frequently suffer from abiotic wasting, often accompanied in the early stage by symptoms of retro-bulbar neuritis.

Lecture VI, on Syphilitic Disease of the Nervous System, is of even more practical interest. "There is no syphilitic disease of the nerve structures" (tissue). The "neuroglia" the connective tissue, blood vessels and the membranes of the nervous system is a common seat of constitutional syphilis, resulting in a secondary affection of the nervous elements. Specific treatment acts only on the specific process and has no direct influence on the secondary changes by which the symptoms are produced.

It is to be regretted that the book has no index.

Dogs. How to Care for Them in Health and Treat Them When Ill.—Homœopathic Treatment (Illustrated). Compiled and arranged by E. P. Anshutz. Philadelphia, Boericke & Tafel, 1903. Pp. 100.

What, cure sick animals—dogs—with homœopathic medicine? Yes, why not? No matter about theoretical explanations of we have the hard facts. Aconite, arsenicum, belladonna, bryonia, ipecac, phosphorus, nux vomica, sulphur, and a number of others are mentioned in this little book with their indications in cold, distemper, disturbances of the bowels, various inflammations, and in fact most, if not all, the ills we are apt to meet in dogs. Brief

suggestions are given about the diseases and about the care of the dog in health. We must confess to surprise, however, at reading that arsenic is to be given for influenza "if the discharge takes on a purulent character."

A Thesaurus of Medical Words and Phrases.—By Wilfred M. Barton, M.D., Assistant Professor of Therapeutics and Materia Medica and Lecturer on Pharmacy, Medical Dept., Georgetown University, and Walter A. Wells, M.D., Demonstrator of Laryngology, Georgetown University; Adjunct Professor of Laryngology, Washington Post-graduate School; Fellow of the American Rhinological, Laryngological and Otological Society. W. B. Saunders & Co., Philadelphia, New York, London, 1903.

We welcome this complement to the medical dictionary; it saves the time and bother we have all expended in trying to recall the correct technical word or phrase for our idea.

Once possessed, no writer, teacher or speaker will ever be without this handy and interesting book. Drs. Barton and Wells in their next edition will doubtless supply the term for "fear of being poisoned," which they have omitted—toxiphobia, is it not? Synonyms and related words are brought together. Under the caption, "Prescription," are presented a list of Latin phrases that are generally used in reference to the taking of medicine. Under that of 'Drug" are not only the terms applied to drugs for their therapeutic action, but also an alphabetical list of their common names with their technical equivalents opposite. In the table of preparations a column gives the terminations of the Latin plurals.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. By W. A. NEWMAN DORLAND, A.M., M.D., Assistant Obstetrician to the University of Pennsylvania Hospital; Editor of the American Pocket Medical Dictionary; Fellow of the American Academy of Medicine. *Third Edition,* Revised and Enlarged. W. B. Saunders & Co., Philadelphia, New York, London. 798 two column pages.

After a critical examination we do not hesitate to pronounce this the best of all the medical dictionaries of its volume that we have come across. It is the only one that mentions astigmia and astigmic; unfortunately their derivation is sacrificed to conciseness. It is to be hoped that in the next edition this omission will be rectified and the difference between *stigma* and *stigme* emphasized, demonstrating why these words are preferable to astigmatism and astigmatic. This is the only dictionary, within our knowledge, which correctly gives the derivation of hemeralopia and nyctalopia: "Hemeralopia (hem″ er-al-o-pe-ah) [Gk. *hemera,* day; *alaos,* blind, and *ops* eye]. 1. Day-blindness. * * * " "Nyctalopia (nik-tal-o-pe-ah) [*Gk. nux* night, *alaos* blind, *ops* eye]. 1. Night-blindness; failure or imperfection of vision at night or in a dim light, with good vision only on bright days. * * *" The disgraceful confusion of these terms is shown by the fact that the second definition of each is the reverse of the above. Foster and the Standard Dictionary ignore the *alaos* which reverses the meaning given in their and Dorland's alternative definitions.

There are numerous full page plates, most of them finely colored, and elaborate tables—not only anatomical and bacteriological, but of diseases, operations, signs and symptoms, stains, tests, and methods of treatment. We notice that, according to the table of abreviations, o. u. stands for the Latin *oculus uterque,* "either eye," and that for "both eyes" we should write o^2. For a book which fits the hand so comfortably this is remarkably encyclopedic. The binding, paper and printing are exceptionally good.

THE CHRONIC DISEASES. Their Peculiar Nature and Their Homœopathic Cure. [Theoretical Part Only.]—By DR. SAMUEL HAHNEMANN. Translated from the second enlarged German edition of 1835 by Prof. Louis H. Tafel. Pp. 269. Cloth, $1.25; postage 10 cents. Boericke & Tafel, Philadelphia, 1904.

Second in importance to the Organon for a proper understanding and thorough knowledge of Homœopathy is this little book, written not to satisfy his critics, but in the effort to formulate another and later explanation of what takes place in the interiors of man during a homœopathic cure.

The intelligent, thinking man is seldom satisfied with mere facts and their relations; sooner or later he seeks a theoretical explanation of them. With advances in knowledge theories pass, but established facts are immutable. The great fact of homœopathy no more depends upon one's acceptance of Hahnemann's—or any other person's—attempted explanation of its why and how than are its cures dependent upon faith or imagination. Cures of babies and animals are too numerous to be mere coincidences, and surely they cannot be attributed to faith or imagination.

Samuel Hahnemann was one of the most learned physicians of his time; as such as well as in deference to his success in many years of practice and in his establishment of a school which has endured already for a hundred years and exerted a marked influence upon the practice of the majority who did not follow its tenets—any views advanced by him are entitled to respectful consideration.

It is important to bear constantly in mind that since Hahnemann wrote the scientific world has changed not only its methods, but, and to a still greater degree, its ways of thinking. If we think we do not believe in "vital force," as Hahnemann expresses it, careful consideration will doubtless show that we accept virtually the same thing under another name. His "psora" is but his way of expressing the fact, now generally recognized, that the condition of the system is an important factor in sickness and in poison-

ing—it determines why fleas, the acarus, etc., harbor on some and avoid other individuals. That dyscrasia is what he meant by "psora." It is a little mind indeed that would turn from this valuable book prejudiced by a misapprehension of this term.

In 1816, at the age of 61, Hahnemann sought the reason why he and his followers were not effecting permanent, radical cures in patients with severe chronic non-venereal diseases, the sickness returning in a more or less varied form and with new symptoms or reappearing annually with an increase of complaints and even the best selected remedies losing gradually their efficacy. Not satisfied with the consolation that these failures were due to the paucity in numbers of the proven drugs, he pursued his investigations quietly, revealing his discovery to two of his pupils in 1827 only because it might be lost by his death, not because he had finished his researches; the preface to the fifth volume of the second edition of the "Chronic Diseases" is dated Paris, Dec. 19, 1838.

The proof of the pudding is in the eating. The truth or fallacy of Hahnemann's assertions can be tested only by making the experiments according to his directions. That would be so in any other science, would it not? Those who are content to get along without this rich addition to their armamentarium may be the happier—but their patients may be the sufferers.

American Pocket Medical Dictionary.—Edited by W. A. Newman Dorland, A.M., M.D. *Fourth Edition, Revised and Enlarged.* Containing the Pronunciation and Definition of all the principal terms used in Medicine and the kindred sciences, along with over 60 extensive tables. Pp. 566. W. B. Saunders & Co., Philadelphia and London. Red morocco, gilt edges, $1 net; with thumb index, $1.50 net.

Four editions in four years—the second edition was reprinted once and the third twice—are good evidence of the worth of this

handsome little book, which is now quite up to date for its size; were we expecting too much when we looked for "Cargile membrane"? Much space is saved by omitting the derivations of the words. The derivation of homœopathy give our editor no warrant for inserting in his definition of it the words: "infinitesimal doses of;" had he left these out his definition would have been broader and more accurate. As an evidence of the laxity fostered by dropping the diphthong œ in this and similar words we note immediately above: "Homeomorphous. Of like form and structure. Homeosteoplasty. Osteoplasty with a piece of bone from the same person." (According to this definition the word should be Iso-osteoplasty.) The correct definition, however, is: "The surgical implantation of a piece of bone similar to the grafted bone."

THE PATHOGENIC MICROBES. M. LE DR. P. JOUSSET.—Physician to the Hospital Saint Jacques; former Interne Laureat (Gold Medal) of the Hospitals of Paris; Director of the Laboratory of Bacteriology of the Hospital Saint Jacques. Authorized translation of Horace P. Holmes, M. D. Pp. 192. Cloth, $1.00. Postage, 8 cents. Philadelphia, Boericke & Tafel.

A fascinating little book. Pathogenic microbes are not always pathogenic; they are found in the human body in three states: a pathogenic, a latent yet virulent, and a saprophytic state absolutely deprived of virulence. The pneumococcus exists in the latent state in the mouths of most people, even in those who have never had pneumonia. So is the streptococcus found latent in our saliva and Eberth's bacillus in the stools of healthy men who had never had typhoid fever, the latter has also been demonstrated in pus from abscess in the neck 18 months after an attack of typhoid fever. The bacillum coli becomes virulent only by diseases (inflammation) of the intestine, and men bearing cholera bacilli in

their intestines have remained exempt even during an epidemic. Saprophytic pathogenic bacilli can reproduce themselves indefinitely without recovering virulence. It is absolutely impossible to distinguish with the microscope or by cultures between the saprophytic and the virulent states of a pathogenic microbe. There is no technique by means of which we can restore the virulence of a pathogenic bacillus when it is in the saprophyte state, but the organism can do so.

Therefore, the virulence which characterizes the pathogenic bacillus is only an accidental or contingent property. The microbes of diphtheria, cholera, typhoid fever, and the plague have the triple property of producing the disease, of conferring immunity, and of curing. Koch's bacillus is only pathogenic. That of tetanus has an immunizing property that is almost absolute—if taken in time, not later than 18 or 20 days—and a therapeutic property that is nil. The immunity from the Loeffler bacillus lasts only 15 days.

The bacilli act through their toxines; some toxines act in the absence of their microbes, others are powerless to produce the disease if absolutely isolated from the microbes. The toxines are organic poisons of the nature of the diastases—toxalbumins convertible into albuminoses—they are analogous to the venoms, to abrine and ricine. Alcohol precipitates the toxines of most of the cultures.

The immunizing and therapeutic properties of the pathogenic microbes and their toxines present what to some may seem a paradox: the production of opposite effects through the same cause. So far from being an exceptional action, this has become a law in pharmacodynamics. Hippocrates said: "That which

produces strangury in a healthy man cures strangury in a sick man."

Dr. Jousset regrets the term antitoxine, because it represents an error; even after the destruction of the theory which gave it birth, the words still mislead as to the nature of the immunizing and curative actions of the pathogenic microbes.

In microbiology there are eight methods of attenuating the microbes and their toxines: 1, heat; 2, light, separated from heat; 3, oxygen, under pressure; 4, electricity, with currents of high frequency; 5, simple aging; 6, the mixing into the toxines and into the pure cultures of certain substances, as the salts of gold and the iodides; 7, successive increasing inoculations, and 8, the place of inoculation. Aside from attenuation, immunizing serum may be obtained by inoculating an animal naturally immune which has the faculty of producing a serum endowed with immunizing and curative properties.

The immunizing and curative serum derived from animals is a new product of the living cell, having an analogous and not a contrary action to that of the toxine. It is not a chemical nor a physiological antidote, nor an attenuated toxine like the vaccines and the medicaments borrowed from pure cultures.

The serums of numerous animals contain a substance which, injected into another animal, is globulocidal and is also bactericidal; Buchner named it *alexine,* he has not been able yet to isolate it. The alexines are probably produced by the polyneuclear leucocytes. Heated to 131° F., the alexine loses its globulicidal and bactericidal properties and is then called sensibilitrice or anticorps, because if injected into an animal it increases the haemolytic (globulicidal) power of the alexines. All the serums contain variable quantities of alexine, but this is not indispensable to

the activity of the preventive serum.

Jousset cautions us against the conclusion that the presence of the streptococcus indicates a very dangerous case of diphtheria—this association is almost always found, and streptococcus constantly exists in the mouth and throat in the saprophytic state; prognosis must depend upon the clinical symptoms.

Our present knowledge upsets the dictum of twenty years ago, that all microbic diseases proceed from an external cause, the microbe, that for each microbe species there corresponds a morbid species. In the organism there are three factors: the microbe, external causes, exterior conditions, corresponding to the apparatus of the laboratory, and the living cell, which is the culture medium. This last is the principal factor in the relative gravity of diseases as well as of individual cases; in this lies the predisposition to or natural immunity from disease.

Living beings escape the attack of microbes by means of phagocytosis and the bactericidal property of the serum, which is also found in the tissues and liquids of the animal. But, the bactericidal state of the blood is not always in rapport with the immunity! The result of a laboratory experiment should not be used as an argument of what must take place in the living organism. It has been demonstrated that certain pathogenic microbes secrete a product which paralyzes the vaso-dilators and prevents diapedesis of phagocytes; others by their secretion exalt vasodilatation and bring about considerable phagocytic diapedesis.

The least dangerous serums, particularly that of the horse, may, in certain individuals, produce benign and transient accidents, but do not forget that they may be fatal; from this comes the absolute rule: Never employ a serum in man unnecessarily!

If antidiphtheritic serum is introduced into the organism when the toxine has already developed a part of its effects the proper action of the first is added to that of the second and precipitates a fatal denoument. Both the toxine and the antitoxine of diphtheria increase the number of respirations (the antitoxine more markedly) and the pulse (to a greater degree by the toxine), and both—but particularly the antitoxine—lower arterial pressure.